

. Fort Peck Reservoir is experiencing high inflows due to recent rain. As a result, the forecasted discharge tomorrow is 55,000 cfs, with a sustained discharge of 60,000 cfs at least through the middle of July. This release schedule has not impacted the release schedule from Garrison Dam.

Tom Doering

N.D. Department of Emergency Services

Division of Homeland Security

[tdoering@nd.gov](mailto:tdoering@nd.gov)

701-328-8206 (desk)

701-595-1016 (cell)

Classification: UNCLASSIFIED  
Caveats: NONE

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Caveats: NONE

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Caveats: NONE

**NWO**

---

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 09, 2011 7:34 AM  
**To:** [REDACTED] NWO; Farhat, Jody S NWD02  
**Subject:** RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Right on, concur with your comments, just verifying

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 7:32 AM  
**To:** [REDACTED] HQ02; Farhat, Jody S NWD02  
**Subject:** RE: For your review (UNCLASSIFIED)

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Caveats: NONE

[REDACTED]

I agree with Jody's comments. The USGS develops the rating curve and the NWS makes the decision when to adopt a new curve.

Just an FYI, while the rating curve is currently tracking below the original projections (a good thing), we need to be cautious about relying on the rating curve to be stable. We don't know how the curve will react when we get a surge from the Heart River, or if there will be an upward shift once the water warms up.

[REDACTED]

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 08, 2011 7:02 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO  
**Subject:** RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 7:01 PM  
**To:** [REDACTED] HQ02; [REDACTED] NWO  
**Subject:** RE: For your review (UNCLASSIFIED)

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Caveats: NONE

The reservoir pool information and releases are correct as is the statement regarding Fort Peck releases. You would have to check with the RFC regarding the statement about the shift in the rating curve.



Jody

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 08, 2011 6:55 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Subject: FW: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody/[REDACTED]

I have been asked to review the following and wanted to run by you. In reference to the RFC paragraph are we in agreement with this statement? Also is the comment regarding Ft. Peck on target regarding through the middle of July?

Thanks

[REDACTED]  
Disaster Program Manager  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]@usace.army.mil

-----Original Message-----

From: Doering, Tom [mailto:tdoering@nd.gov]  
Sent: Wednesday, June 08, 2011 5:56 PM  
To: [REDACTED] HQ02  
Subject: For your review

Summary

• Current pool elevation at Garrison reservoir is 1853.2 feet mean sea level (msl) and the USACE Water Management Division's stated Garrison Dam release schedule, is as listed below:

- o Increase to 130,000 cubic feet per second (cfs) today
- o Increase to 135,000 cfs on Friday

• The River Forecast Center (RFC) has acknowledged the applied numerical correction (manual shift) in consideration of observed changes to Missouri River dynamics. The shift has been applied to the U.S. Geological Survey (USGS) rating curve and adopted by the National Weather Service (NWS), for application to forecasting river stage in the Bismarck/Mandan area. Commensurate with the revised rating curve is today's 17.4 feet and forecasts for 18 feet on Sunday, followed by 19 feet on June 18.

Fort Peck Reservoir is experiencing high inflows due to recent rain. As a result, the forecasted discharge tomorrow is 55,000 cfs, with a sustained discharge of 60,000 cfs at least through the middle of July. This release schedule has not impacted the release schedule from Garrison Dam.

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Caveats: NONE

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**From:** Cieslik, Lawrence [Lawrence.Cieslik@hdrinc.com]  
**Sent:** Thursday, June 09, 2011 7:33 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** June 2011 Forecast

Jody:

Hate to bug you, but when do you think your June Forecast will hit the street?

P.S. - I think you and your staff are doing a great job, I am proud of you all.

Lawrence J. Cieslik

Senior Project Manager

HDR ONE COMPANY | Many Solutions  
8404 Indian Hills Drive | Omaha, NE | 68114-4049  
Phone: 402.548.5172 (direct)

Fax: 402.399.1111 | Email: [lawrence.cieslik@hdrinc.com](mailto:lawrence.cieslik@hdrinc.com) HDR Home: [www.hdrinc.com](http://www.hdrinc.com)  
<<http://www.hdrinc.com/>>

[REDACTED] NWO

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Sent: Thursday, June 09, 2011 7:32 AM  
To: [REDACTED] HQ02; Farhat, Jody S NWD02  
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[REDACTED]

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John

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[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED] [usace.army.mil](mailto:usace.army.mil)

-----Original Message-----

From: Doering, Tom [<mailto:tdoering@nd.gov>]  
Sent: Wednesday, June 08, 2011 5:56 PM  
To: [REDACTED] HQ02  
Subject: For your review

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Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** Steven M Robinson [smrobins@usgs.gov]  
**Sent:** Thursday, June 09, 2011 7:26 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD02; [REDACTED] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [REDACTED]  
[REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED]  
NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO;  
gjwiche@usgs.gov; Bradley A Sether; smrobins@usgs.gov  
**Subject:** Below Garrison discharge measurement for June 8

A discharge measurement was made on June 8 @ 1429 further downstream than previous measurements - no inflow was seen by the boat crew as they traveled downstream.

Location -- Lat 47 25.5527 Long 101 24.3064

Q=137,400 cfs  
width = 1520 ft  
max depth 27.8 ft  
max velocity about 9.2 fps  
mean velocity about 5.0 fps

\*\*\*\*\*

Steven M. Robinson  
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S.  
Geological Survey office 701-250-7404 cell 701-220-6309

\*\*\*\*\*

**NWO**

---

**From:** Reed & Staci Martin [martins@rpt.coop]  
**Sent:** Wednesday, June 08, 2011 11:06 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RESIGN !!!!!!!

YOUR MISMANGEMENT OF THE RIVER IS CAUSING GREIF FOR THOUSANDS, HOPE YOUR HAPPY. JUST OMIT IT  
AND RESIGN NOW !!!!!!!!!!!!!!!!



[REDACTED] NWO

---

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 08, 2011 10:59 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Ruch, Robert J COL NWO  
**Subject:** WAPA Regulating plant

Jody/[REDACTED]:

Discussed the Oahe release situation with OPM Eric Stasch today and believe he/we had an expectation from WAPA that Oahe would not continue this role past a few days ago--what's supposed to be happening? Does it matter? Should I get engaged with WAPA? Please advise. Thanks.

Vr/John McMahon

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 10:19 PM  
**To:** DLL-CENWO-EOC CMT-ALL  
**Cc:** CENWD-EOC NWD; 'Hutson, Marc B COL MIL USA USARNORTH'; [REDACTED]  
NWO; 'Earl, William W MAJ MIL USA USARNORTH'; 'Evans, Leroy M CIV USA  
USARNORTH'; 'Fema-R8-RRCC-DIRECTOR@dhs.gov'; [REDACTED] HQ02  
**Subject:** Flood Report #84 (UNCLASSIFIED)  
**Attachments:** 24hr Past Precip 6\_8\_11.jpg; 1dayQPF 6\_8\_11.gif; 2dayQPF 6\_8\_11.gif; 3dayQPF 6\_8\_11.gif; dailybull 6\_8\_11.pdf; mainstembull 6\_8\_11.pdf; TempOutlook\_8Jun11.xls; Missouri River Basin Water Management Situation Report 6-8-11.docx; NWO Flood Fight Materials 7 Jun.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 10:04 PM  
**To:** [REDACTED] NWO  
**Subject:** Flood Report #84 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

**\*\*EMERGENCY OPERATIONS\*\***

**1. Situation:**

Generally in an area from Glasgow, MT northeast to the Montana/North Dakota/Canadian border had between 0.5" to 1" rain, with a few locations receiving around 2 inches. Glasgow's 24 hour precipitation ending at 6 am this morning was 1.73 inches. There was about 0.25" to 0.50" of rain from Bismarck, ND west along I-94 to the Montana border.

Winds Impacting Fort Peck, Williston, Garrison, and Oahe: As high pressure builds into the northern plains, winds will generally be much lighter than the past several days. At Fort Peck, the winds have switched to the east, and they will become southeast through the end of the week. Thursday afternoon they will gust to 20 to 25 mph, otherwise winds should be under 15 mph. At Williston, Garrison, and Oahe, initially a north wind up to 20 mph will occur today, then gradually switch to the east and eventually southeast by Thursday morning. By Thursday afternoon southeast winds will gust to near 25 mph, otherwise winds will mostly be under 15 mph through the rest of the week.

**Montana:**

Box Elder (Chippewa Tribe of the Rocky Boy's Reservation), MT - requested Emergency Operations Technical and Direct Assistance from the USACE Omaha District yesterday. Joel Ames is deploying to provide assistance. Ft. Peck Project Office provided 10,000 sandbags to tribe today.

Musselshell County (City of Roundup), MT - A construction contract was awarded to Harddrives Construction of Billings, MT for \$84,241.47. Construction will include an earthen levee approximately 120 LF and 5.5 feet in height around the sanitary lift station. Contract period is scheduled for 2 days. However, the county received 2-5 inches of rain yesterday causing the Musselshell River to rise 3.5 feet in 12 hrs. This rapid rise flooded the project site, flooded the highway to Billings and the flooded out the borrow area. Contact is currently on hold as river recedes and the situation is reevaluated.

Ft. Peck Dam - Geotech will continue to closely monitor the spillway plunge pool area due to increased spillway releases.

North Dakota:

Williston, ND - Project personnel continuing to search for available contractors to bolster emergency stockpile material. Large boil area remains unchanged. Some increased pin boil activity noted approximately .5 miles east of large boil area.

Garrison Dam: No significant dam safety issues to report.

South Dakota:

Oahe Dam: No significant dam safety issues.

Big Bend Dam: No significant dam safety issues. Repairs to slough on spillway is 80% complete

Fort Randall Dam: All spillway gates will need to be opened to accommodate the release schedule. Wall drains on the right side of the spillway will be plugged to ensure water does not saturate the walls previous backfill again. Drill Crew will complete piezometers installations behind spillway walls today. These piezometers will be used to monitor for excessive hydrostatic pressure in the backfill behind the spillway walls. No other significant dams safety issues to report.

Gavins Point Dam: No significant dam safety issues. With gates open, debris appears to be passing through spillway with no issues.

Missouri/Iowa:

ERDC will be coming with Android phone apps for levee surveillance. Application allows field inspectors to photograph, document and geotag levee safety items.

USGS is on site and has offered personnel and tools for OHM mapping on levees.

L575 - Sponsor placing riprap riverward of damaged section. Sandbags being added to crest to mitigate wave-wash and boils ring-diked.

L550 - Repairs complete by sponsor in accordance with Corps recommendations.

Omaha - section of levee was sandbagged and currently pumping interior drainage (Kinder Morgan facility).

South Omaha Sewage Treatment Plant RAIL closure has been completed.

R616-613 - Closure structures are all installed (R616). DNR is flagging and filling rodent holes and raising low spots.

R573/OPPD Power Plant - OPPD moving forward with plan after advice from Corps. Team will provide future support as requested.

R548 - All culverts clean and flap gates closed. Pumps have been set-up.

2. Weather:

2a. Past Precipitation:

Over the past 24 hours, precipitation in the Missouri River basin was limited to eastern Montana and parts of North Dakota.

2.b. Future Precipitation:

The Day 1 QPF (from 700 hours Wednesday to 700 hours Thursday): A cold front has been moving across eastern Nebraska this morning. There is a chance for an isolated thunderstorm along and near this front across far southeast Nebraska and western Iowa later in the afternoon into early evening. This front is expected to stall across northern Kansas and northern Missouri tonight. By later tonight, especially after midnight, thunderstorms are expected to develop north of the stalled front across northern Kansas, southern Nebraska and northwest Missouri. Some of these thunderstorms may become severe with large hail. In addition, these storms may produce rainfall of 1' to 2" in some isolated spots. Overall, the area of east central, southeast Nebraska, and southwest Iowa (from Sioux City south) is expecting 0.25" to 1.50" of rain.

Low pressure over Montana will continue to produce scattered showers, with widespread rainfall amounts of 0.25"-0.75" over mainly central and western Montana. See attached.

The Day 2 QPF (from 700 hours Thursday to 700 hours Friday):

A slow moving cluster of thunderstorms may linger into the morning hours of Thursday. Then throughout the day on Thursday, there will be a chance of additional thunderstorm development across eastern Nebraska and western Iowa. A greater threat of thunderstorms will again exist overnight on Thursday into Friday morning as a stronger upper level weather system moves into the northern and central plains. The main focus for heaviest rain shifts northward and east into Iowa. The maximum amount of rain is expected to be between 0.5" to 1.75" in an axis from Des Moines to Sioux City.

The lingering low pressure near Montana will continue to result in more rainfall Thursday night over eastern Montana into western and central portions of the Dakotas. Rainfall in eastern Montana may reach up to an inch. See attached.

The Day 3 QPF (from 700 hours Friday to 700 hours Saturday):

By Friday, much of the Missouri River Basin is expected to be dry with high pressure moving in. However, more rain is expected across much of the Missouri River Basin starting Saturday night into Monday morning. The rainfall is expected to be between 0.25" to 0.50" across much of the basin. See attached.

#### 2.c Temperature forecast:

Generally we're entering into a much cooler temperature pattern over much of the basin. Today and Thursday much of the higher elevations of Montana and Wyoming will see highs in the 50s and lows in the 30s and some 40s. The lower elevations should see highs a few degrees cooler than normal such as in the 60s over the Dakotas and 70s over much of Nebraska...with 80s still over southeast Nebraska into Iowa. See attached.

#### 3. Hydro Status:

##### 3.a. River (Flood Stage/Current Stage/Forecast/Date of Peak: Peak Stage) Montana

- \* Yellowstone River at Billings/13.11.14/rising/Jun 10: 11.6'
- \* Yellowstone River at Forsyth/10.09.28/rising/Jun 10: 10.9'
- \* Yellowstone River at Miles City/13.01.21/rising/Jun 12: 13.2'
- \* Yellowstone River near Sidney/19.01.29/receding, then rising/Jun 12: 16.3'
- \* Big Hole River near Melrose/6.06.69/rising/Jun 9: 8.0'
- \* Jefferson River near Three Forks/8.07.31/rising/Jun 10: 9.2'
- \* Gallatin River near Logan/8.08.85/rising/Jun 10: 9.4'
- \* Missouri River near Toston/10.59.97/rising/Jun 10: 11.7'
- \* Missouri River near Ulm/13.513.46/rising/June 9: 14.2'
- \* Missouri River near Wolf Point/13.013.25/rising/Jun 11: 15.6'
- \* Milk River near Harlem/21.022.15/rising/Jun 9: 23.4'
- \* Milk River at Tampico/25.027.19/peaking, then rising/Jun 13: 27.5'
- \* Milk River at Glasgow/25/33.7/rising/Jun 8: 33.8' \*\* New Record Stage\*\*
- \* Milk River at Nashua/20.025.79/rising/Jun 10: 29.8'
- \* Musselshell River near Roundup/10.013.45/peaking/Jun 8: 14.9 forecasted to stay high

#### Wyoming

- \* North Platte River at Saratoga/8.510.42/rising/Jun 8:10.55' \*New Record Stage\*
- \* North Platte River near Sinclair/9.010.84/rising/Jun 10: 11.11'

- \* Laramie River at Laramie/5.0/5.1/steady, then rising/Jun 11: 5.6'
- \* Laramie River near Fort Laramie/7.0/5.68/steady /Jun 8: 5.7'

#### North Dakota

- \* Missouri River at Williston/22/27.73/rising/Jun 13: 29.8'
- \* Missouri River at Bismarck/16.0/17.35/rising/Jun 12: 18.0'
- \* James River at Jamestown/12.00/11.58(1,810 cfs)/steady/

#### South Dakota

- \* Missouri River at Pierre/13.0/18.78/steady/
- \* Missouri River near Greenwood/30.0/37.71/steady/
- \* Missouri River near Gayville/55.0/55.16/rising/

#### Nebraska

- \* North Platte River near Mitchell/7.5/9.33/steady/
- \* North Platte River at North Platte/6.0/7.58/steady
- \* Missouri River at Sioux City/30.0/32.32/rising/Jun 12: 34.5'
- \* Missouri River at Decatur/35.0/35.82/rising/Jun 12: 38.2'
- \* Missouri River near Blair/26.5/29.26/rising/Jun 13: 30.9'
- \* Missouri River at Omaha/29.0/30.31/rising/Jun 13: 32.3'
- \* Missouri River at NE City/18.0/23.28/ rising/Jun 13: 24.6'
- \* Missouri River at Brownville/33.0/39.41/steady, then rising/Jun 13: 41.0'
- \* Missouri River at Rulo/17.0/23.2/steady, then rising/Jun 13: 24.9'

#### 3.b. Reservoirs:

##### Tributary Reservoirs:

Pipestem Reservoir, (ND) - fell 0.12' to elevation 1485.26 ft-msl. Inflows are near 120 cfs and the release was 400 cfs. 66.5% of the flood pool is occupied.

Jamestown Reservoir, (ND) - fell 0.07' yesterday to elevation 1446.09 ft-msl. Inflows are approximately 300 cfs and releases were 1400 cfs. The combined Jamestown/Pipestem release is 1800 cfs. 50.9% of the flood pool is occupied.

Heart Butte, (ND) - Reservoir fell 0.21 ft to elevation 2066.65 ft-msl yesterday with inflows of 449 cfs and releases of 819 cfs. Heart Butte has 5.0% of its flood control pool occupied, Pactola (SD) is at 8.5% (crested June 3-4 at elevation 4584.9 ft-msl), and Shadehill (SD) is at 3.8%.

Yellowtail, (MT) - fell 0.02 ft to elevation 3631.43 ft-msl with inflows of 14,789 cfs. The release was 14,887 cfs. 86.4% of its multipurpose pool is occupied.

Tiber, (MT) - rose 0.67 ft to elevation 2994.65 ft-msl. Inflows were 6,880 cfs and releases are 720 cfs as the USBR stores water to help reduce inflows to Fort Peck. 7.5% of its flood pool is occupied.

Clark Canyon, (MT) - rose 0.08 ft to elevation 5546.31 ft-msl with inflows of 561 cfs and releases of 353 cfs. 1.3% of its flood control pool is occupied.

Glendo, (WY) - rose 0.23 ft to elevation 4637.63 ft-msl. 12.0% of its flood control pool is occupied. Inflows were 8,003 cfs and releases were 6,314 cfs.

Missouri River Mainstem Reservoirs: (Water Management SITREP is attached). Following is a link to the Mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open.

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/7 Pool Elev: 2250.9 ft-msl

24-hr change: 0.4'

6/7 Ave Inflow: 101,000 cfs

6/7 Ave Release: 48,500 cfs

6/8 Scheduled Release: 50,000 cfs

Garrison Dam (ND)

6/7 Pool Elev: 1853.4 ft-msl

24-hr change: 0.0

6/7 Ave Inflow: 104,000 cfs

6/7 Ave Release: 125,400 cfs

6/8 Scheduled Release: 130,000 cfs

Oahe Dam (SD)

6/7 Pool Elev: 1619.1 ft-msl

24-hr change: -0.1'

6/7 Ave Inflow: 144,000 cfs

6/7 Ave Release: 147,000 cfs

6/8 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/7 Pool Elev: 1419.7 ft-msl

24-hr change: 0.4'

6/7 Ave Inflow: 143,000 cfs

6/7 Ave Release: 131,900 cfs

6/8 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/7 Pool Elev: 1360.8 ft-msl

24-hr change: 0.1'

6/7 Ave Inflow: 143,000 cfs

6/7 Ave Release: 132,700 cfs

6/8 Scheduled Release: 137,000 cfs

Gavins Point Dam (NE-SD)

6/7 Pool Elev: 1206.8 ft-msl

24-hr change: 0.3'

6/7 Ave Inflow: 129,000 cfs

6/7 Ave Release: 125,500 cfs

6/8 Scheduled Release: 140,000 cfs

4. Emergency Operations:

4.a.1 Nebraska

North Platte, NE - Solicitation request to raise temporary levee at the Airport cancelled due to high bids. Work will be accomplished between the UP RR and Hwy 30 on left side of North Platte River. Requested proposal for new SOW from 8(a) contractor with bid opening at 1700. Award 8 June 2011 and construction complete 14 June 2011.

Nebraska City, NE OPPD - Met with OPPD personnel to develop a reduced risk plan for the Nebraska City Power Plant. Plant is becoming over task for power with the shut-down of the Fort Calhoun Plant. Also providing levee surveillance training on 9 June 2011.

Offutt AFB, NE - Storm drain capped today on the southwest corner of the installation. Determining areas where levees have low spots to be sandbagged. Sand and bags delivered by 2400 9 June 2011. AF will make and place bags.

#### 4.a.2 Montana

Phillips County, MT - Requested direct assistance from USACE Omaha District. They are requesting 3000 sandbags and the Fort Peck Project office will supply.

State of Montana requested direct assistance from USACE Omaha District for Valley County and the Fort Peck Tribe. They are requesting 50,000 sandbags and the Fort Peck office will supply and for Lewis and Clark County. They are requesting 200,000 sandbags.

Poplar, MT: 20 additional rolls of poly were delivered to Poplar today. Also USACE tech teams were on-site all day in Poplar providing technical assistance on levee construction that the Fort Peck Tribe is doing. USACE have been providing local engineers with design elevations.

#### 4.a.3 North Dakota

Bismarck/Mandan, ND - Construction is complete. Final clean up is underway.

Fort Yates, ND - Standing Rock Sioux Tribe (SRST):

First contract is approximately 100% complete. Second contract is approximately 20% complete.

#### 4.a.4 South Dakota

Pierre/Ft. Pierre, SD - Pierre Levees - 100% final grade and poly installed. Back slope grading, grubbing and clean up are left to complete contract.

Dakota Dunes, SD - Contractor is performing well on 7800 LF levee with 6,385 LF to design elevation 1100. Total earthen levee is 46% complete. Total poly placement is 28% complete. Contractor should be complete by midnight, 09 June.

The State of South Dakota has requested technical assistance for Clay County through our liaison in the State EOC. Representative from the Gavins Point Project office is providing the technical assistance.

#### 4.a.5 Wyoming

USACE Technical team members (9 total) are meeting with communities, State of Wyoming Office of Homeland Security representatives and county officials.

North Platte Drainage Basin, WY - team completed mission assignment and returned to Omaha today.

Wind River Drainage Basin, WY - teams (2) finishing final assessments with briefings and will return to Omaha 9 June.

USACE joined daily State of Wyoming Daily Flood Management telephone conference call at 1500 CDT. Briefed USACE technical assistance involvement and status of team member visits with communities.

#### 4.a.6 Iowa/Missouri:

Sioux City (Woodbury County), IA - water wells. Received verbal request from State of Iowa to provide an access road and ring dike protection to two city water wells. Official request is being coordinated with State of Iowa.

Council Bluffs (Pottawattamie County), IA -- Team visited the Pottawattamie EOC and provided hydro support for Mosquito Creek and met with the IA Incident Commander. Council Bluffs requested 4,700 feet of Hesco Barrier to create a levee around the Council Bluffs WWTP. Received Hescos last night, 7 Jun 11. Union Pacific will be raising the grade of the tracks to extend the service on the line and have a trigger water gage point for track closure.

Hamburg, IA/Ditch 6, Near Hamburg, IA - Ditch 6 - Construction of levee raise continues, roughly 60% complete on Segment 1 of 3 separate segments. Completion date is 14 Jun 11.

L575 - Repairs by sponsor are complete to original levee cross section. Some water continues to flow but minimal at this point.

Floodwater Pumps - Owe Pumps to fulfill the following State of Iowa requests: Sioux City, IA - 2-12" Pumps; Blencoe, IA - 1-12" pump; Missouri Valley, IA - 3 -12" pumps

Pump resources are becoming very critical in responding to these requests.

4.a.7 Missouri: See above.

#### 4.b Equipment:

##### Sandbags

Issued: 13.8 M

On Hand: 4,782,500

Projected: 6.5 M

Currently 495,000 due in 8 Jun. Requested additional 2M

##### HESCO 3'

Issued: 8,200 LF

On Hand: 855 LF

Projected: 14,000 LF

##### HESCO 4'

Issued: 40,070 LF

On Hand: 25,580 LF

Projected: 25,000 LF

##### Poly Rolls

Issued: 2,201

On Hand: 1,891

Projected: 1,500

Currently 525 rolls due in 8/9 Jun

##### Pumps

Issued: 25

On Hand: 7

Projected: 25

#### Additional Supplies due in:

Sandbags: 495,000 due in 8 jun. Requested additional 2 M Poly Rolls: 525 rolls due in 8/9 June



Pumps: 1 w/hoses due in 8 Jun. Requested additional 25

#### 4.c Funding:

- \* Total Code 200 Funding received to date for this event: \$46,197,425
- \* Total Code 200 Funding waiting to be received for this event: \$0
- \* Total Code 200 Funding revoked to date for this event: \$2,600,000
- \* Class 219 - Emergency Operations - Direct Assistance - \$250,000 - WAD and FAD received 3/14/2011
- \* Class 219 - Emergency Operations - Direct Assistance - \$3.825M - WAD received 03/15/11. FAD received 03/16/11.
- \* Class 219 - Additional Funds Request on 24 March - \$231,425 - WAD and FAD received 03/24/11.
- \* Class 219 - Emergency Operations - Direct Assistance - \$2.5M revoked - 4/13/11
- \* Class 219 - Emergency Operations - Direct Assistance - \$100k revoked - 4/22/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$56k - MIPR - 4/30/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$25k - Request and received for EOC Operations and deployments on 4/30/11
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - WAD and FAD received on 05/25/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - WAD and FAD received on 05/26/11
- \* Class 200 - Emergency Operations - Response Operations - \$5,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/27/11 - WAD received for \$2M received on 05/31/11 - verbal received on 06/04/11 for \$1M
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - request sent 05/28/11 - WAD received on received 05/28/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/31/11 - WAD received 06/01/11
- \* Class 200 - Emergency Operations - Response Operations - \$6,500,000 - request sent 06/01/11 - WAD for \$3M received 06/02/011 - verbal received on 06/04/11 for \$3.5M
- \* Class 200 - Emergency Operations - Response Operations - \$1,500,000 - request sent 06/03/11 - verbal received 06/03/11
- \* Class 200 - Emergency Operations - Response Operations - \$1,000,000 - request sent 06/03/11 - verbal received 06/03/11 - WAD received 06/06/11
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - request sent 06/04/11 - verbal received 06/04/11
- \* Class 200 - Emergency Operations - Response Operations - \$2,000,000 - request sent 06/05/11 - verbal received 06/05/11
- \* Class 200 - Emergency Operations - Response Operations - \$300,000 - request sent 06/06/11 - verbal received 06/07/11
- \* Class 200 - Emergency Operations - Response Operations - \$50,000 - received 06/08/11
- \* Total Code 500 Funding received to date: \$827,904
- \* Class 520 Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/2/11.
- \* Class 52A Additional Request for Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/10/11.
- \* Class 520 Additional Request for Funding - Advance Measures - Technical assistance - \$101,640. WAD and FAD received on 3/24/11.
- \* Class 519 Funding - Advance Measures - Direct Assistance - \$376,264. WAD and FAD received on 3/28/11.

\* Class 520 Funding - Advance Measures - Technical assistance - \$110k - FAD received on 05/12/11.

\* Class 510 Funding - Advance Measures - Direct assistance - \$40k - FAD received on 05/26/11

Daily Labor Burn Rate: \$137,500

Daily Contract Burn Rate: \$3,400,000

Combined Daily Burn Rate: \$3,537,500

4.d Number of Personnel Supporting EOC Operations:

Working in field: 76

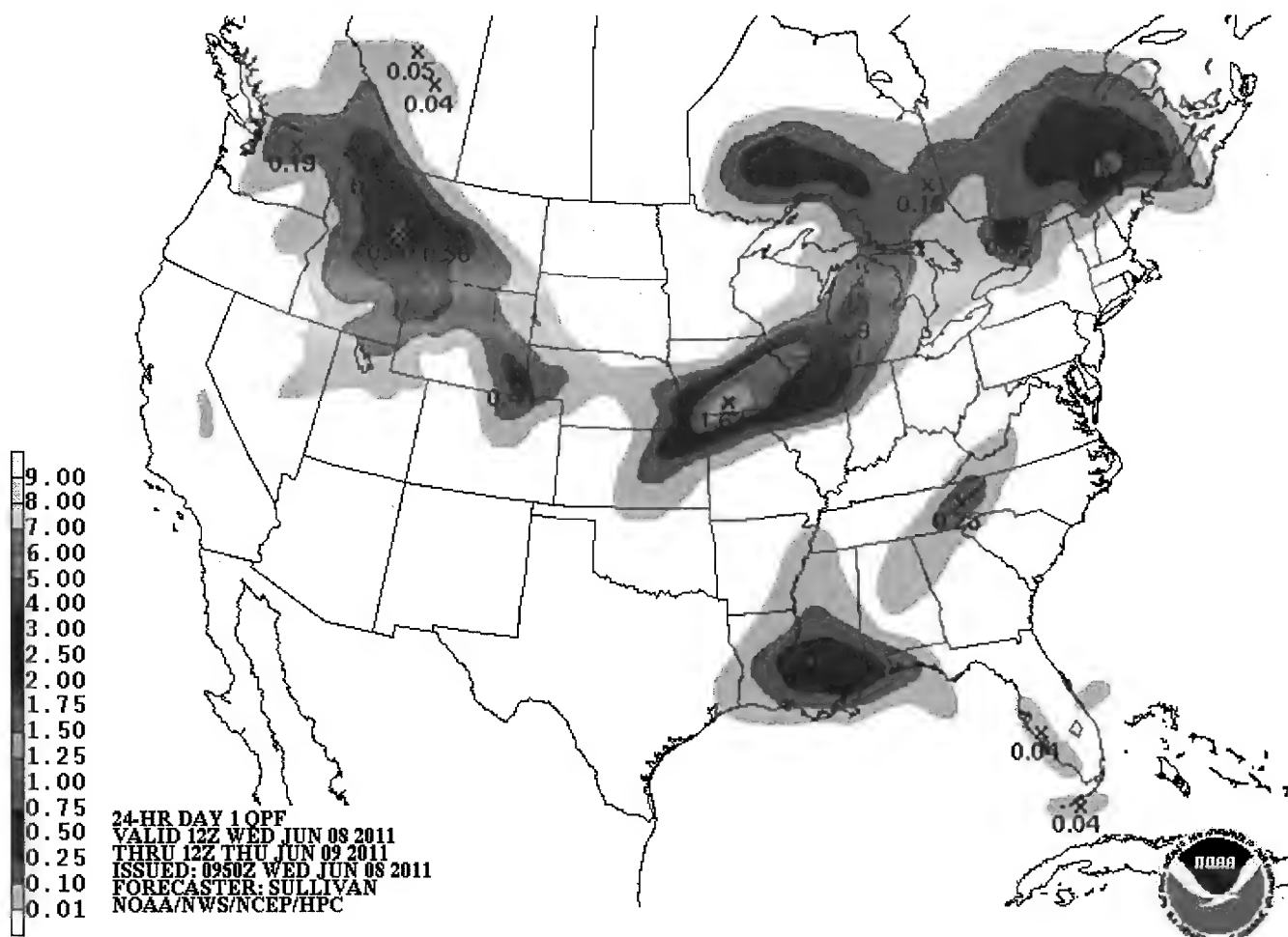
Working in District: 50

Outside District: 1

5.a EOC Activation - Level IV - 24 hour Activation (Shifts: 0700-1930)

Classification: UNCLASSIFIED

Caveats: NONE





US Army Corps  
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Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem and Tributary Reservoir Bulletin

Project Data Date/Time: 06/08/11 12:00 AM

Bulletin Updated: 6/8/11 10:16 AM

Project	Project Information				Current Data					Occupied Storage		
	Elevations (ft msl)		Storage		Elevation (ft msl)	Dly Elev. Change	Storage (ac-ft)	Inflow (dsf)	Release (dsf)	MP (%)	FC (ac-ft)	FC (%)
	MP	FC	MP	FC								
MRR - Missouri River Mainstem Projects												
*Please note Mainstem and USBR data is calculated manually and will populate before 12:00 p.m.												
Fort Peck	2234.0	2250.0	14,788,000	18,463,000	2250.91	0.44	18,685,000	101,000	48,500	100.0	3,897,000	100.0
Garrison	1837.5	1854.0	18,109,625	23,820,730	1853.38	0.00	23,539,000	104,000	125,400	100.0	5,429,375	95.1
Oahe	1607.5	1620.0	18,834,035	23,136,960	1619.12	-0.09	22,797,000	144,000	147,000	100.0	3,962,965	92.1
Big Bend	1420.0	1423.0	1,621,484	1,798,614	1419.74	0.45	1,605,000	143,000	131,900	99.0	0	0.0
Fort Randall	1350.0	1375.0	3,124,368	5,418,186	1360.84	0.14	4,054,000	143,000	132,700	100.0	929,632	40.5
Gavins Point	1204.5	1210.0	320,971	469,928	1206.80	0.30	362,000	129,000	125,500	100.0	41,029	27.5
System Totals							71,042,000					
NWO - USBR Section 7 Projects												
Tiber	2993.0	3012.5	925,649	1,328,723	2994.65	0.67	955,758	6,880	600	100.0	30,109	7.5
Clark Canyon	5546.1	5560.4	174,367	253,442	5546.31	0.08	175,380	561	353	100.0	1,013	1.3
Canyon Ferry	3797.0	3800.0	1,891,888	1,992,977	3783.25	0.57	1,453,782	21,409	13,005	76.8	0	0.0
Boysen	4725.0	4732.2	741,594	892,226	4705.26	-0.27	430,314	3,652	5,098	58.0	0	0.0
Buffalo Bill	5393.5	5393.5	646,565	646,565	5347.81		324,310	9,363	5,471	50.2		
Yellowtail	3640.0	3657.0	1,070,000	1,328,000	3631.43	-0.02	924,765	14,789	14,887	86.4	0	0.0
Jamestown	1429.8	1454.0	31,510	221,000	1446.09	-0.07	127,868	918	1,397	100.0	96,358	1.3
Heart Butte	2064.4	2094.5	67,000	214,000	2066.65	-0.21	74,405	449	819	100.0	7,405	5.0
Keyhole	4099.3	4111.5	194,000	334,000	4097.52	-0.01	172,382	-446	0	88.9	0	0.0
Pactola	4580.2	4621.5	56,000	99,000	4584.42	-0.21	59,654	316	411	100.0	3,654	8.5
Shadehill	2271.9	2302.0	120,000	350,000	2273.66	-0.11	128,670	536	830	100.0	8,670	3.1
Glendo	4635.0	4653.0	518,000	790,000	4637.63	0.23	550,763	8,003	6,314	100.0	32,763	12.0
NWO - USACE Tributary Projects												
Bowman-Haley	2754.8	2777.0	18,765	91,482	2755.89	-0.09	20,720	153	216	100.0	1,955	2.7
Pipestem	1442.5	1496.3	8,944	142,107	1485.26	-0.12	97,520	-249	397	100.0	88,576	30.5
Chatfield	5432.0	5500.0	27,428	234,207	5431.42	-0.13	26,593	36	151	97.0	0	0.0
Cherry Creek	5550.0	5598.0	12,805	133,134	5550.07	0.01	12,858	3	0	100.0	53	0.0
Bear Creek	5558.0	5635.5	1,882	30,586	5558.48	0.00	1,932	29	31	100.0	50	0.2
Papio #11	1121.0	1142.0	3,054	16,907	1121.43	-0.05	3,222	-3	7	100.0	168	1.2
Papio #16	1104.0	1121.0	1,211	4,782	1104.17	-0.05	1,233	0	3	100.0	22	0.5
Papio #18	1110.0	1128.2	2,916	10,512	1092.20	0.00	262	0	0	9.0	0	0.0
Papio #20	1095.8	1113.1	2,536	8,611	1096.01	-0.05	2,587	-4	0	100.0	51	0.5
Cottonwood	3875.0	3936.0	655	8,385	3856.51	0.01	0	0	0	0.0	0	0.0
Cold Brook	3585.0	3651.4	520	7,200	3582.71	-0.01	439	0	0	84.4	0	0.0
Lake Audubon	1847.0	1847.0	323,690	323,690	1849.42	-0.04	INFLOW AND OUTFLOW NOT CALCULATED					
Lake Pocasse	1617.0	1617.0	11,000	11,000	POOL ELEVATION READ MONTHLY BY PROJECT OFFICE							
Salt Creek #02	1335.0	1350.0	1,100	4,957	1333.88	-0.04	927	-3	0	84.2	0	0.0
Salt Creek #04	1307.4	1322.5	2,531	9,660	1307.10	-0.03	2,437	-5	0	96.3	0	0.0
Salt Creek #08	1287.8	1302.0	1,780	8,375	1288.33	0.00	2,143	19	19	100.0	363	5.5
Salt Creek #09	1271.1	1285.0	1,451	5,864	1271.23	-0.05	1,476	-3	2	100.0	25	0.6
Salt Creek #10	1244.9	1262.0	1,629	7,468	1245.33	-0.07	1,721	-3	5	100.0	92	1.6
Salt Creek #12	1232.9	1252.0	1,808	9,415	1233.14	-0.04	1,859	-3	2	100.0	51	0.7
Salt Creek #13	1341.0	1355.0	2,161	7,182	1340.96	-0.03	2,151	-4	0	99.5	0	0.0
Salt Creek #14	1244.3	1263.5	7,500	27,597	1244.53	-0.02	7,665	-4	3	100.0	165	0.8
Salt Creek #17	1242.4	1266.0	783	6,628	1242.54	-0.04	825	-1	1	100.0	42	0.7
Salt Creek #18	1284.0	1311.0	25,088	96,759	1284.56	-0.05	26,131	-6	41	100.0	1,043	1.5



US Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem Reservoir Bulletin

Bulletin Updated: 6/8/11 10:15 AM

Project	Project Information					Current Data (as of 00:00)					Occupied Storage					
	Elevations (ft msl)		Storage Capacity (ac-ft)			Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg. Inflow (dsf)	Release (dsf)	Multi-Use		Annual FC		Exclusive	
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use	Annual FC						Exclusive	(ac-ft)	(%)	(ac-ft)		(%)
TODAY																
Project Data Date/Time 6/8/2011																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2250.91	0.44	18,685,000	101,000	48,500	100.0	2,704,000	100.0	1,193,000	
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.38	0.00	23,539,000	104,000	125,400	100.0	4,222,000	100.0	1,207,000	
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1619.12	-0.09	22,797,000	144,000	147,000	100.0	3,201,000	100.0	762,000	
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.74	0.45	1,605,000	143,000	131,900	99.0	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1360.84	0.14	4,054,000	143,000	132,700	100.0	930,000	71.0	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1206.80	0.30	362,000	129,000	125,500	100.0	55,000	64.0	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			71,042,000				11,112,000		3,162,000	
YESTERDAY																
Project Data Date/Time 6/7/2011																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2250.47	0.03	18,585,000	51,000	43,000	100.0	2,704,000	100.0	977,416	
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.38	-0.12	23,583,000	97,000	118,300	100.0	4,222,000	100.0	1,251,000	
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1619.21	0.06	22,805,000	137,000	137,600	100.0	3,201,000	100.0	770,000	
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.29	-0.03	1,584,000	129,000	128,200	97.7	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1360.70	0.21	4,034,000	133,000	121,600	100.0	910,000	69.5	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1206.50	0.16	355,000	118,000	115,500	100.0	48,000	55.8	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			70,946,000				11,085,000		2,998,416	
DAM INFORMATION																
Surveillance Period Triggers		Record Pool Level		Design		Top of		Design Spillway Elev.		RECENT ELEVATIONS						
Weekly	Daily	24 hour	Elev	Year	Dam Crest	Surcharge	Crest	Top of Gate								
2246.0	2247.0	1854.8	2252.0	1975	2280.5	2256.1	2225.0	2250.0								
1850.0	1854.0	1854.8	1854.8	1975	1875.0	1858.5	1825.0	1854.0								
1617.5	1618.7	1618.7	1618.7	1995	1680.0	1644.4	1596.5	1620.0								
1422.0	1422.0	1423.0	1422.1	1991	1440.0	1433.6	1385.0	1423.0								
1365.0	1370.0	1372.0	1372.2	1997	1395.0	1379.3	1346.0	1375.0								
1210.0	1210.0	1210.7	1210.7	1960	1234.0	1221.4	1180.0	1210.0								

7 Day Temperature Forecasts (High/Low)						
7-Jun-11						
Location	Wed	Thu	Fri	Sat	Sun	Mon
	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	12-Jun
Helena, MT	65/42	52/41	68/46	63/44	66/44	66/44
Livingston, MT	56/40	56/40	66/42	66/43	66/44	66/45
Billings, MT	61/44	57/45	65/48	69/50	67/51	69/51
West Yellowstone, MT	56/35	50/31	60/35	58/33	59/34	59/35
Cody, WY	57/45	57/42	65/45	68/47	67/46	70/48
Sheridan, WY	62/44	60/43	64/45	70/47	68/48	68/48
Casper, WY	71/46	69/43	70/44	76/48	76/47	76/46
Laramie, WY	67/44	67/36	65/40	71/45	71/45	69/44

Tues
13-Jun
66/NF
63/NF
67/NF
58/NF
69/NF
68/NF
77/NF
70/NF

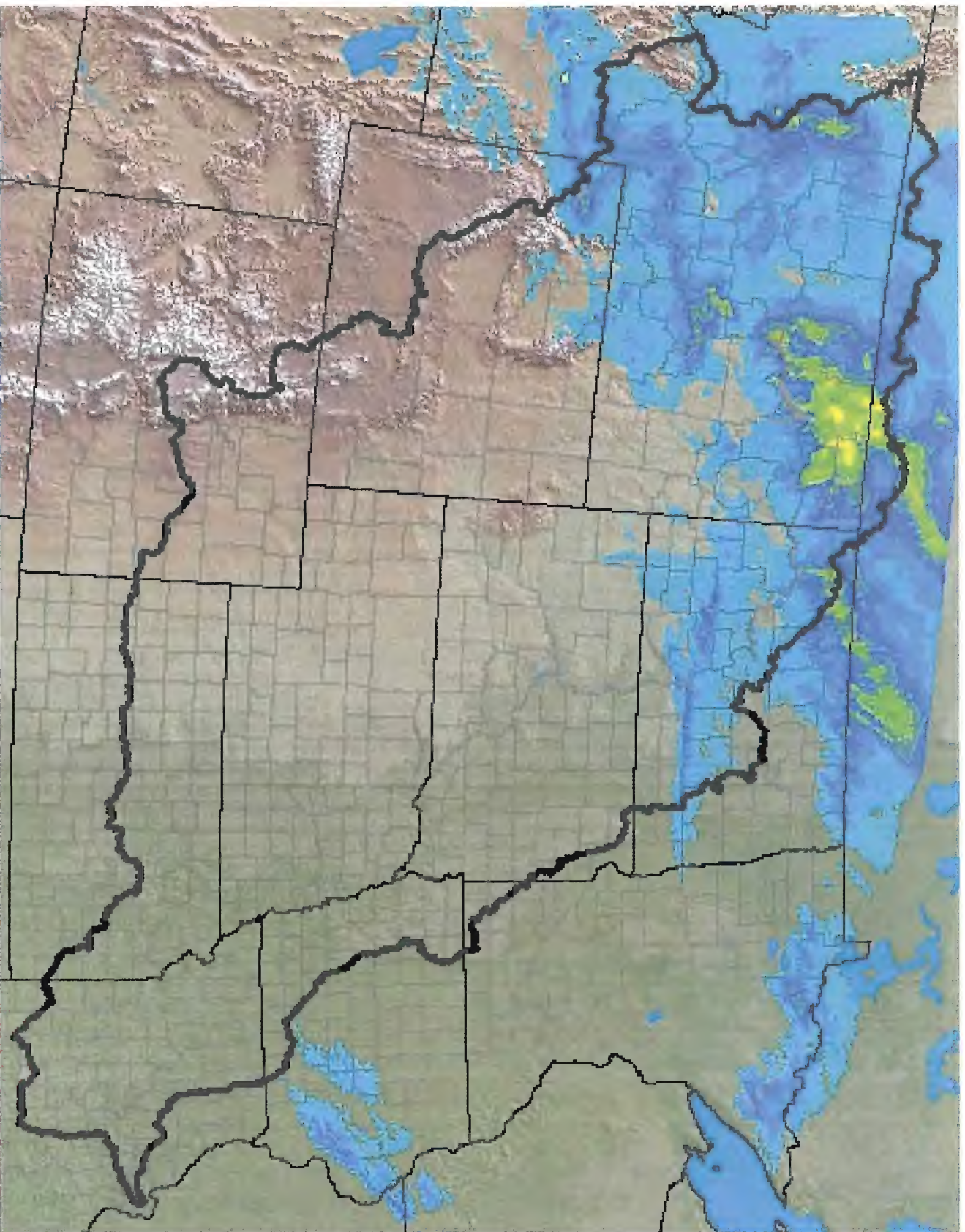
As of: 173007JUN11

	SANDBAGS	3' HESCO	4' HESCO	POLY ROLLS	TRAPBAG	PUMPS
ISSUED:	13,843,000	8,200 LF	40,070 LF	2,201 rolls	0 LF	25 pumps
ON HAND:	4,782,500	855 LF	25,580 LF	1,891 rolls	0 LF	7 pumps
PROJECTED REQTS:	6,500,000	14,000 LF	25,000 LF	1,500 rolls	same as 4' HESCO	25 pumps

### Notes

1. Sandbags: 495,000 due in 8 June. Requested additional 2 M
2. Poly Roll: 525 rolls due in 8/9 June.
3. Pumps: 1 w/ hoses from TN due in 8 June. Requested additional 25



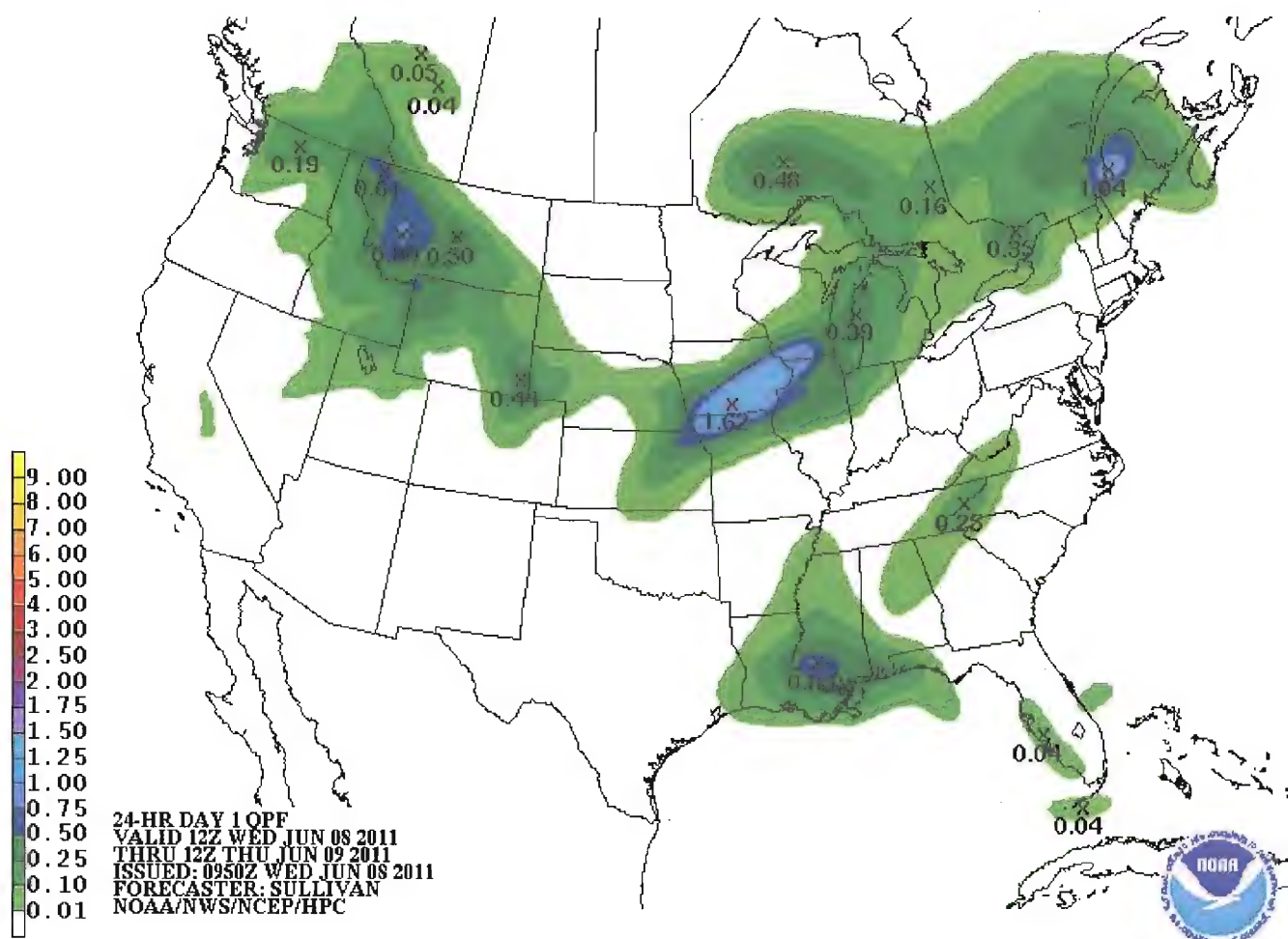


0.01 0.05 0.10 0.25 0.50 0.75 1.00 1.50 2.00 2.50 3.00 4.00 5.00 6.00 8.00 +

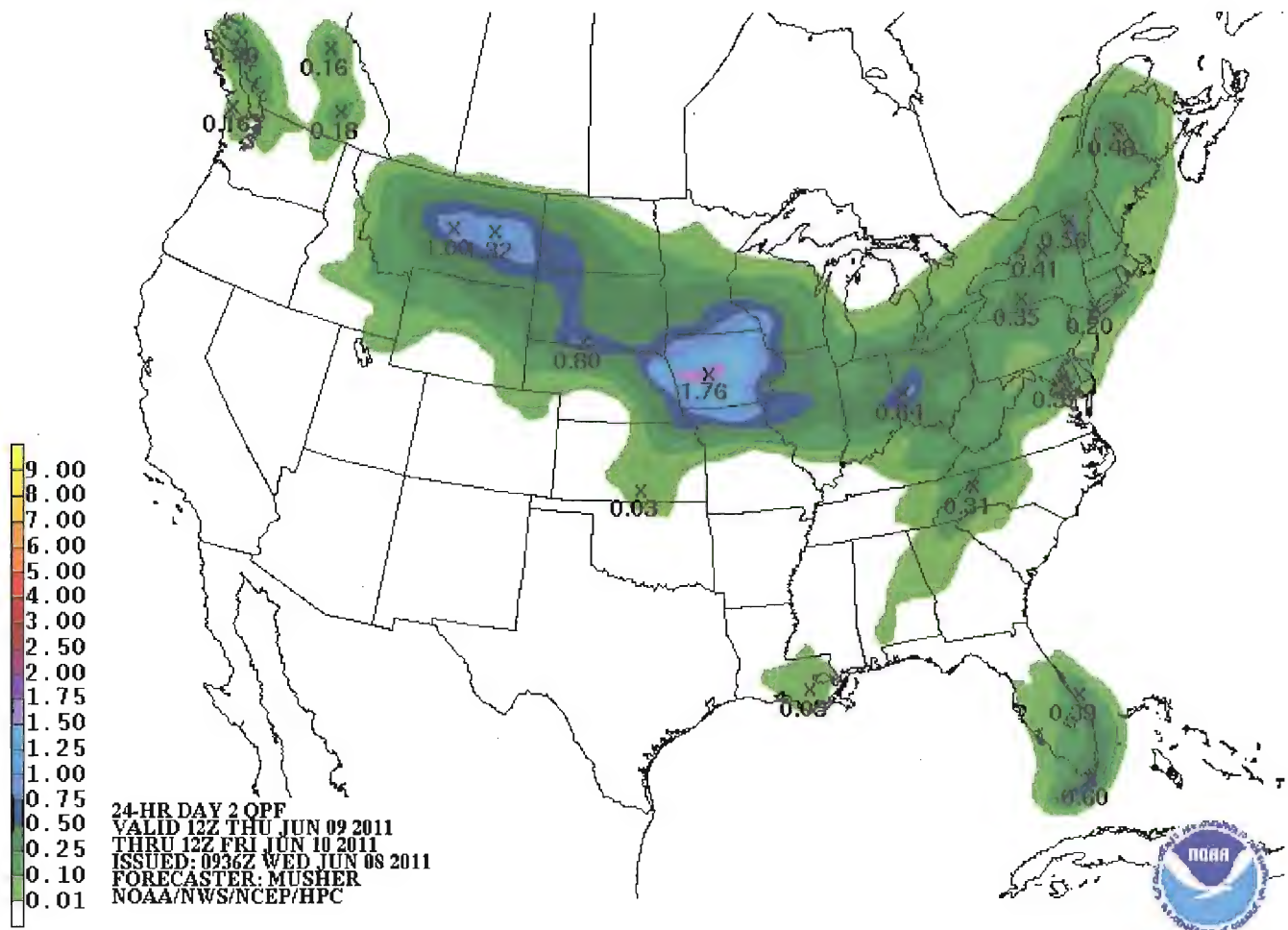
# MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

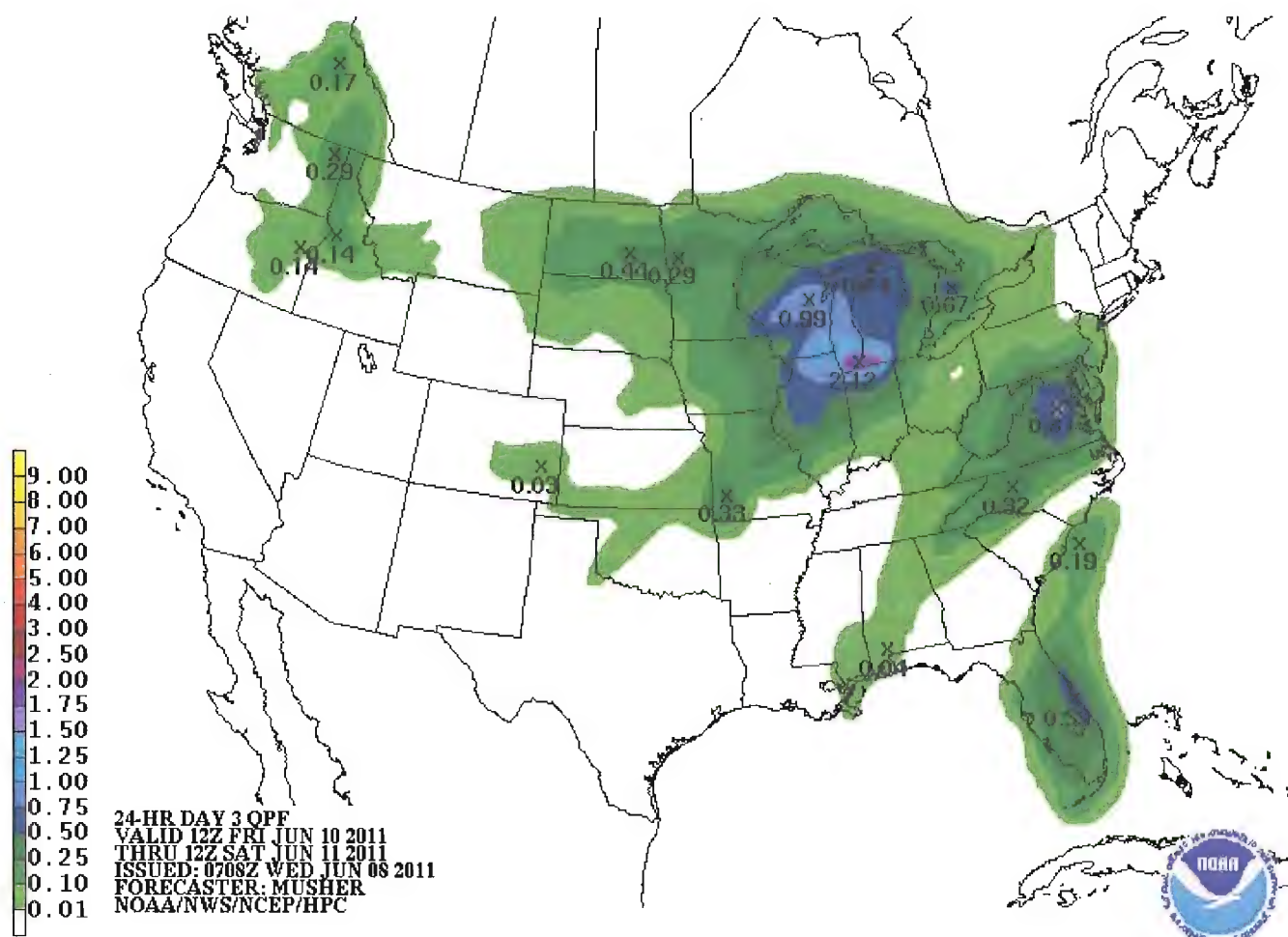
Ending: 6/8/2011 at 7:00AM CDT

Created 6/8/2011 at 9:17 AM CDT









## Missouri River Basin Water Management Situation Report – 6-8-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Note the large increase in the inflows for Fort Peck Reservoir due to the heavy rainfall the day before in Montana. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/8/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	101.0	48.5	2250	2250.9	0.4
Garrison	104.0	125.4	1854	1853.4	0.0
Oahe	144.0	147.0	1620	1619.1	-0.1
Big Bend	143.0	131.9	1423	1419.7	0.4
Fort Randall	143.0	132.7	1375	1360.8	0.1
Gavins Point	129.0	125.5	1210	1206.8	0.3

Based on the current level data on the upper three reservoirs, the amount of remaining storage has diminished or is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use Oahe spillway at this time. Because the spillway gates are open at Fort Peck, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/8/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	18,685	18,463	-222	971	-23
Garrison	23,539	23,821	282	1,489	19
Oahe	22,797	23,137	340	1,102	31
Big Bend	1,605	1,798	193	60	100
Fort Randall	4,054	5,418	1,364	985	100
Gavins Point	362	450	88	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out are now at the currently anticipated maximum releases at all six reservoirs. Also note that the anticipated maximum for Fort Peck Reservoir increased from 50 to 55 kcfs. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/8/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 14 June kcfs	14 days out 21 June kcfs	Pre-2011 Record kcfs
Fort Peck	48.5	50.0	55	55	35
Garrison	125.4	130.0	150	150	65
Oahe	147.0	150.0	150	150	59
Big Bend	131.9	150.0	150	150	74
Fort Randall	132.7	137.0	148	148	67
Gavins Point	125.5	140.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

**Table 4. Missouri River Stage Data for 6/8/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.3	20-21	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	32.2	35-37	mid-Jun thru July
Decatur, NE	35	35.7	40-42	mid-Jun thru July
Omaha, NE	29	30.3	34-36	mid-Jun thru July
Nebraska City, NE	18	23.3	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.1	27-32	mid-Jun thru July
Kansas City, MO	32	26.8	30-39	mid-Jun thru July
Waverly, MO	20	25.2	27-31	mid-Jun thru July
Boonville, MO	21	23.0	27-33	mid-Jun thru July
Hermann, MO	21	23.1	27-33	mid-Jun thru July

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in Montana. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is yesterday's mountain snowpack update compiled by the Corps.

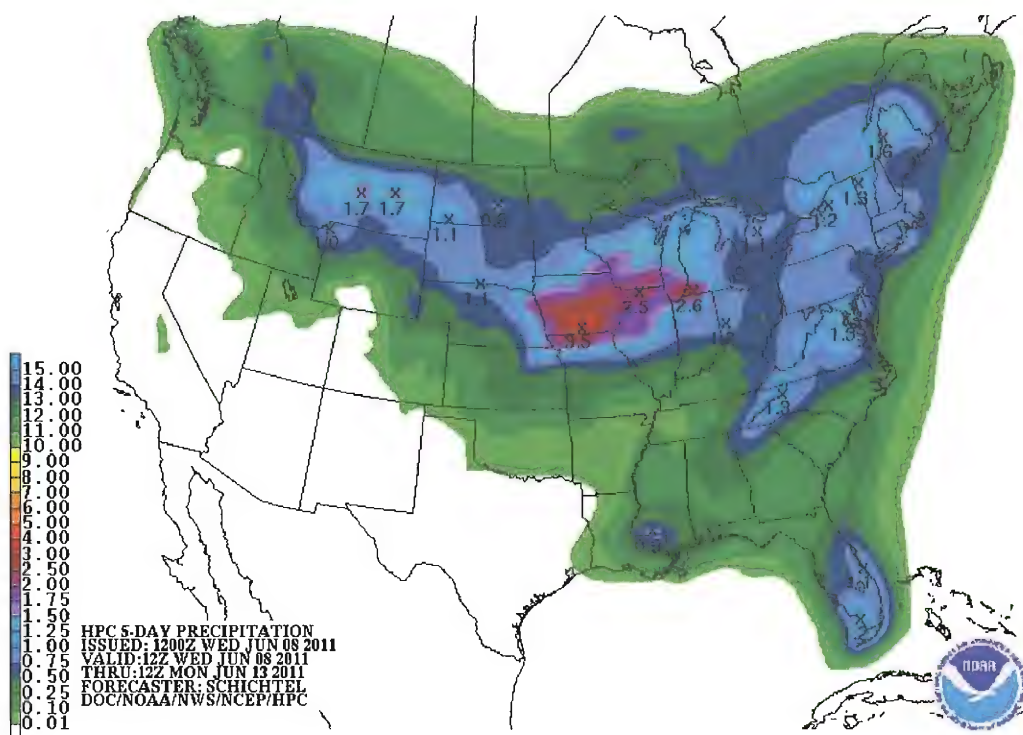
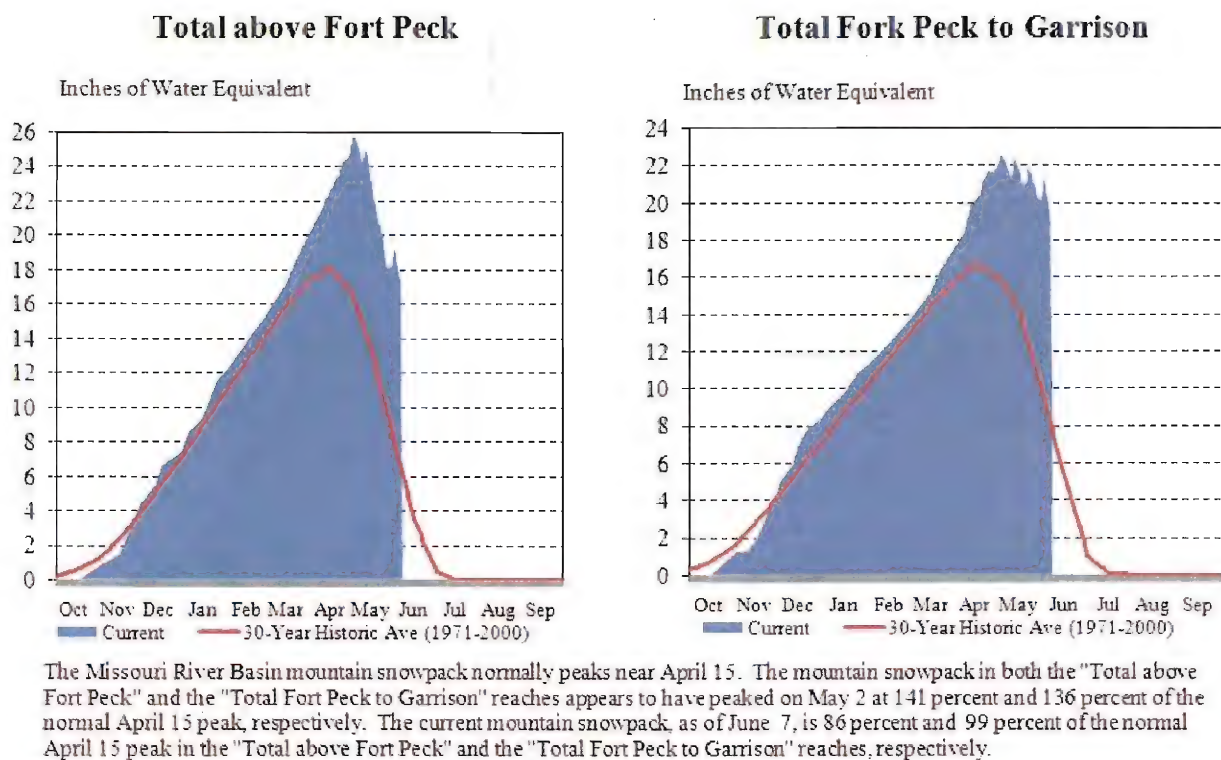


Figure 1. 5-day total QPF ending 0700 Monday, June 13, 2011.





June 7, 2011

Provisional data. Subject to revision.

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 7, 2011.

### Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood.

Figure 3 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 11 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week show a rise to 25.5 feet by next Monday, June 13, and potentially 27 feet by Thursday, June 16.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.



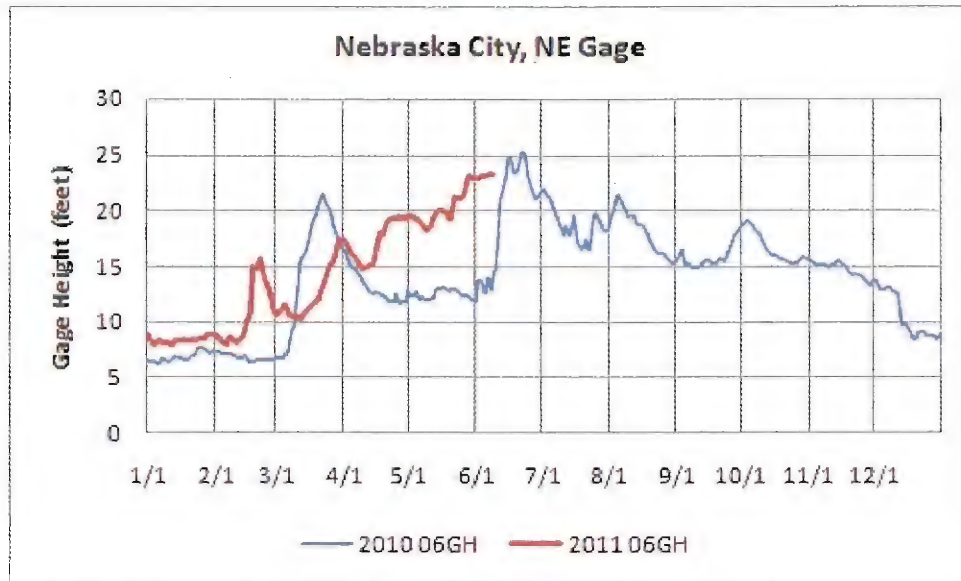


Figure 3. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains fell for the second day in a row in Montana on ground that is likely still saturated from heavy rains the previous 2 to 3 weeks. Figure 4 shows the amount of rain that fell. There are some isolated spots over 2 inches with major areas of rain over half an inch being on the Missouri River basin side of the mountains.

Montana: Current 1-Day Observed Precipitation  
Valid at 6/8/2011 1200 UTC- Created 6/8/11 17:40 UTC

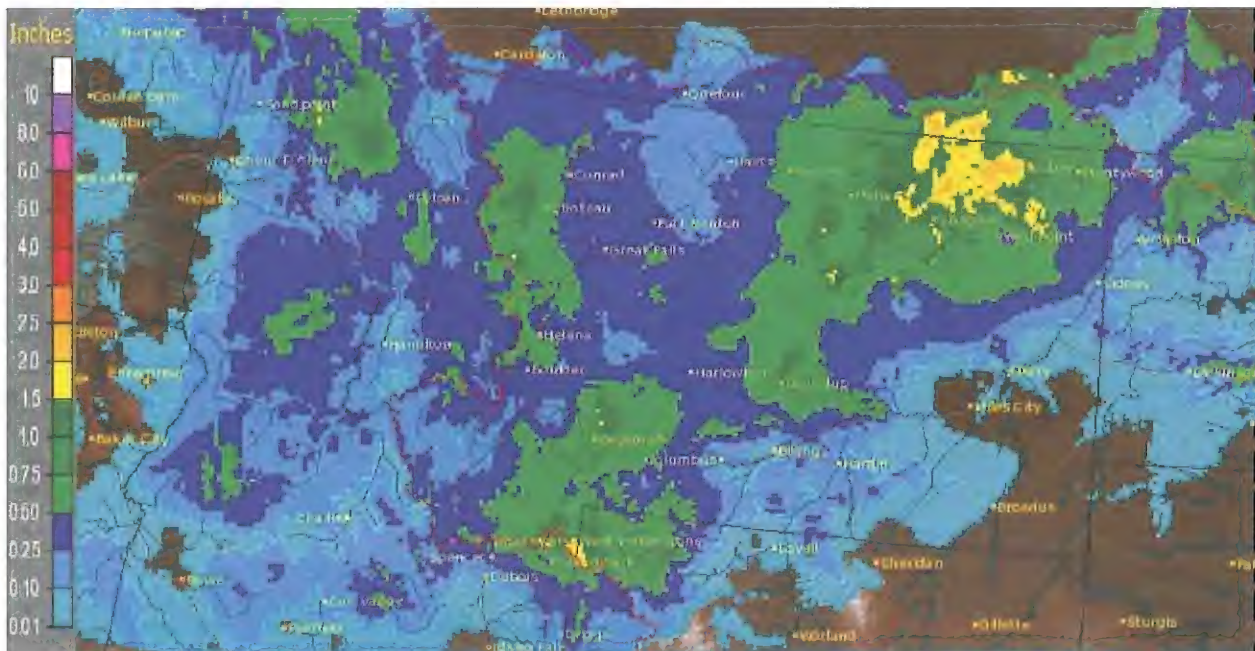


Figure 4. Rainfall on Montana for June 7, 2011.

[REDACTED] NWO

---

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 8:50 PM.  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: 10 year traces

Yes. PowerPoint file In the Flood\_2011 sub directory.

[REDACTED]  
[REDACTED]  
MRBWM Res Reg Team Lead  
[REDACTED] (Office)  
[REDACTED] (BB)

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----  
From: Farhat, Jody S NWD02  
To: [REDACTED] NWD02  
Sent: Wed Jun 08 18:38:24 2011  
Subject: 10 year traces

[REDACTED], did we ever get the 10 year pool elevation plots done? I don't recall seeing them but could have easily missed an email

Witt will be in the office tomorrow. He's the one who was asking for them.

If they're not done, don't worry about it and certainly don't do them tonight. He understands that we're incredibly busy.

Have a good evening.

Jody

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 08, 2011 8:08 PM  
**To:** Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Tipton,  
Robert A Col NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD;  
Ruch, Robert J COL NWO  
**Cc:** [REDACTED] NWD  
**Subject:** Fw: Meeting with NW Delegation (UNCLASSIFIED)

Sen Thune - understands that this will be going on for some time. Appreciate what the Corps is doing. He acknowledged that there are rumors and beliefs gaining ground that the Corps should have released more water earlier and if we had done so, the flooding would not be as severe. He didn't advocate the position, but it is what he is hearing.

Sen Johanns - Omaha, South Sioux City - they have not seen the high water mark - concerned about the maximum exposure level . Several points:

1. South Sioux City is building a dike - community (and Corps) believe it will work - they are using Styrofoam and sandbags (from grain bags). MG Temple stated that we would watch this and we are always interested in solutions such as these (mentioned hesco barriers as a comparison).

2. He also mentioned the releases - could we explain how the system was managed in the Winter/Spring.

MG Temple discussed our releases in March - how we drew down to maximum flood capacity - anticipating the greater than normal snowpack. Saw some snow melt and then the 8 inches of rain.

3. How much did the rainfall cause this increased flooding?

MG Temple discussed that in the immediate timeframe, it caused a big effect, because the rain not only melted some snow, but it went directly into the river.

4. How much snowmelt is expected?

MG Temple discussed that it is hard to say exactly how much more, but that there was still a significant amount of snowpack.

5. Will interstates be affected?

MG Temple stated that we would be watching this closely as forecasts change, if this becomes the case, work with local, state, federal entities.

SEN Moran -

1. Concerned about the Fairfax area of Kansas City, KS - levee(s) may have not been maintained and to please work to keep an eye on this area.

2. He also asked whether or not the Corps thought this would be different/similar to the flooding in 1993.

MG Temple discussed that this flood is only similar in certain places, but that you could not really compare the two events. He did acknowledge that we were better prepared for this flood, in part because of the differences (the longer lead time this year).

3. He asked about the capacity downriver (Mississippi).

MG Temple provided that the event, while very large on the Missouri River did not appear to be likely to cause significant problems for the Mississippi. He discussed the differences in flow rates on the rivers.

SEN Johanns -

1. Concerned whether or not this flood would exceed the design of the system - the water will be high for a long time - concerned about the integrity of the system.

Confirmed that we will be watching the entire system during this event. Afterwards, we will have to inspect, assess, look at repairs/restoration, etc.

SEN Hoeven -

1. Concerned that the Corps do all it can do to assist.

2. The Corps needs to find a way to say "yes" to the requests out there - look at our authorization with the most flexibility possible. Encourage FEMA to do the same.

MG Temple assured him that we would do whatever we could within our authority.

SEN Thune -

1. Questioned whether or not the Master Manual may need to be reviewed/revised?

Discussed the fact that we will certainly look at the manual, as we do every year. If adjustments need to be made - we will look to make them.

2. Discussed the buyouts after the 93 flood - \$35 million authorization - would we participate/recommend something like this.

Discussed the fact that we would be part of the team, as we would have the forensics after the flood - work with DHS, FEMA, HUD, etc.

SEN Johanns wanted to make sure that if there were updates/changes to the Master Manual that the Corps has committed to including all stakeholders (of course).

MG Temple also discussed that we need to look at what we can do better as a Nation - to buy down risk. Certainly dams and levees are part of the solution, but they are not everything.

SEN Thune - asked how influential is Fish and Wildlife would be if there were updates to the manual. We discussed the multi-purposes of the system and all must be balanced. SEN Thune suggested that if the Corps needed assistance to lessen such influence (including legislation) they were willing to help. MG Temple stated that he did not see this as a problem - it is a balancing issue, but thought all would work together.

SEN Hoeven - talked about FEMA requiring flood insurance to be 30 days before the "flood event." They have been working with FEMA to change the date requirement.

DUE OUT - Corps needs to work with FEMA on this and get back to his office (not sure what we can tell him here - since it appears to me (I could be wrong) that this is a FEMA determination. Thoughts?

He also mentioned the oil/gas issue charging for storage. MG Temple did not engage.

[REDACTED]  
Chief, Future Directions Branch/Civil Works

[REDACTED] (desk)

[REDACTED] (cell)

[REDACTED] (fax)

Classification: UNCLASSIFIED

Caveats: NONE

**Subject:** Pre-recorded radio interview re: Mo River releases (KQKQ) (UNCLASSIFIED)  
**Location:** Your Office

**Start:** Thu 6/9/2011 12:00 PM  
**End:** Thu 6/9/2011 12:30 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Farmer, Monique L NWO  
**Required Attendees:** Farhat, Jody S NWD02

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Josh Nelson of KQKQ wants to do a pre-recorded radio interview about the status of the river and what people should expect once we get to 150,000 cfs.

Do you have time for this tomorrow? Should only take about 10 minutes. Details on the station below. Even a podcast.

MF

PODCASTS OF THE MORNING SHOW: <http://q985fm.com/pages/9055020.php>  
<<http://q985fm.com/pages/9055020.php>>

#### EDITORIAL PROFILE/BACKGROUND

KQKQ-FM 98.5 is a commercial Hot Adult Contemporary music station in the Omaha, Neb. area. Its signal reaches parts of Iowa and Missouri with a coverage area that includes Fremont, Council Bluffs, Blair, West Point, Lincoln, Red Oak, Harlan, Nebraska City, Onawa, Missouri Valley, Denison, Atlantic, Seward, Clarinda and Columbus. It is owned by Waitt Omaha LLC and operated by NRG Media. KQKQ-FM uses the tagline "Q98.5" and the slogan "Modern Hit Music That Matters."

#### PUBLICATION/PROGRAMMING INFORMATION

The station broadcasts 24 hours a day, seven days a week.

#### CONTENT SOURCES

Most of the station's programming is locally produced and music-intensive.

#### TARGET AUDIENCE

KQKQ-FM targets listeners between the ages of 18 and 49.

#### PITCHING INSTRUCTIONS

The station accepts public service announcements. Fax written copy to the station's main fax number. Send pre-recorded taped spots to the station's main address.

Sister stations include KBLR (FM-97.3), KCTY (FM-106.9), KKAR (AM-1290), KOIL (AM-1020), KOZN (AM-1620) and KYDZ (AM-1180).



OUTLET STATISTICS

Channel/Frequency: 98.5

Power: 100,000

Call Letters: KQKQ

Station Format: Hot Adult Contemporary

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD  
**Sent:** Wednesday, June 08, 2011 7:50 PM  
**To:** Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] A NWD; [REDACTED] NWD; Hofmann, Anthony J COL NWK; [REDACTED] NWK; [REDACTED] NWO  
**Subject:** FW: Meeting with NW Delegation (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

fysa

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 08, 2011 4:54 PM  
**To:** Temple, Bo M MG HQ02; Stockton, Steven L HQ02  
**Cc:** Kunkel, Jodie L CPT HQ02; McMahon, John R BG NWD; Ruch, Robert J COL NWO; [REDACTED] NWD; [REDACTED] HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02  
**Subject:** Meeting with NW Delegation (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

**When:** Wednesday, 8 June - 1430-1530

**Who:** SENS John Thune (SD), Mike Johanns (NE), Jerry Moran (KS), John Hoeven (ND) (plus multiple staff members, including from REP Noem's office)

**What:** Flooding in the Northwest

**General notes:**

All members were supportive of the Corps and understood the situation and dilemma for the Corps in managing the system.

**General statements/questions and answers:**

Sen Thune - understands that this will be going on for some time. Appreciate what the Corps is doing. He acknowledged that there are rumors and beliefs gaining ground that the Corps

should have released more water earlier and if we had done so, the flooding would not be as severe. He didn't advocate the position, but it is what he is hearing.

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[REDACTED]  
Chief, Future Directions Branch/Civil Works

[REDACTED] (desk)

[REDACTED] (cell)

[REDACTED] (fax)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

From: [REDACTED] MVS  
Sent: Wednesday, June 08, 2011 7:44 PM  
To: Farhat, Jody S NWD02  
Subject: Re: Missouri River Flooding (UNCLASSIFIED)

Jody:

Great!

Thanks,

[REDACTED]  
----- Original Message -----

From: Farhat, Jody S NWD02  
To: [REDACTED] MVS  
Sent: Wed Jun 08 19:24:01 2011  
Subject: RE: Missouri River Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI, Omaha District Commander, COL Bob Ruch, is preparing an op-ed piece refuting this article without referring to it directly. Should be out tonight or tomorrow at the latest.

Jody

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Tuesday, June 07, 2011 4:59 PM  
To: [REDACTED] MVS  
Subject: RE: Missouri River Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Yeah, we saw it. No need to let the facts get in the way of a sensationalized story.

-----Original Message-----

From: [REDACTED] MVS  
Sent: Tuesday, June 07, 2011 4:55 PM  
To: Farhat, Jody S NWD02  
Subject: Fw: Missouri River Flooding (UNCLASSIFIED)

Have you seen this?

----- Original Message -----

From: [REDACTED] MVS  
To: [REDACTED] MVS; [REDACTED] MVS; [REDACTED] NWK; [REDACTED]  
TAN'  
Sent: Tue Jun 07 14:53:10 2011  
Subject: FW: Missouri River Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Do Any of you know the author of this article? He is causing a few problems for our levee Districts/

-----Original Message-----

From: Human, David [mailto:David.Human@huschblackwell.com]

Sent: Tuesday, June 07, 2011 2:28 PM

To: [REDACTED] MVS

Subject: FW: Missouri River Flooding

David R. Human

Partner

Direct: 314.480.1710

[David.Human@huschblackwell.com](mailto:David.Human@huschblackwell.com)

-----Original Message-----

From: Mike Reed [mailto:mreed@snyisland.org]

Sent: Tuesday, June 07, 2011 8:29 AM

To: [REDACTED]

Subject: Missouri River Flooding

Good luck to all of you down in the St. Louis area on this one. See attached from today's Post Dispatch.

Reed

\*\*\*\*\* Begin Notice from Husch Blackwell LLP \*\*\*\*\*

Pursuant to U. S. Treasury regulations, we inform you that any federal tax advice contained in this message (including all constituent email correspondence, attachments, enclosures and/or exhibits) is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing or recommending to another party any transaction or matter addressed herein.

\*\*\*\*\* End Notice from Husch Blackwell LLP \*\*\*\*\*

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED] NWO

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 08, 2011 6:55 PM  
**To:** Farhat, Jody S NWD02; Remus, John I NWO  
**Subject:** FW: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody/[REDACTED]

I have been asked to review the following and wanted to run by you. In reference to the RFC paragraph are we in agreement with this statement? Also is the comment regarding Ft. Peck on target regarding through the middle of July?

Thanks

[REDACTED]  
Disaster Program Manager  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]@usace.army.mil

-----Original Message-----

From: Doering, Tom [<mailto:tdoering@nd.gov>]  
Sent: Wednesday, June 08, 2011 5:56 PM  
To: [REDACTED] HQ02  
Subject: For your review

Summary

• Current pool elevation at Garrison reservoir is 1853.2 feet mean sea level (msl) and the USACE Water Management Division's stated Garrison Dam release schedule, is as listed below:

- o Increase to 130,000 cubic feet per second (cfs) today
- o Increase to 135,000 cfs on Friday

• The River Forecast Center (RFC) has acknowledged the applied numerical correction (manual shift) in consideration of observed changes to Missouri River dynamics. The shift has been applied to the U.S. Geological Survey (USGS) rating curve and adopted by the National Weather Service (NWS), for application to forecasting river stage in the Bismarck/Mandan area. Commensurate with the revised rating curve is today's 17.4 feet and forecasts for 18 feet on Sunday, followed by 19 feet on June 18.

• Fort Peck Reservoir is experiencing high inflows due to recent rain. As a result, the forecasted discharge tomorrow is 55,000 cfs, with a sustained discharge of 60,000 cfs at

least through the middle of July. This release schedule has not impacted the release schedule from Garrison Dam.

Tom Doering

N.D. Department of Emergency Services

Division of Homeland Security

[tdoering@nd.gov](mailto:tdoering@nd.gov)

701-328-8206 (desk)

701-595-1016 (cell)

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] SPK  
**Sent:** Wednesday, June 08, 2011 6:41 PM  
**To:** Farmer, Monique L NWO; Blechinger, Erik T NWO  
**Cc:** Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO; Farhat, Jody S NWD02; Williamson, Eileen L NWO; [REDACTED] MVP  
**Subject:** RE: msnbc.com video: Disaster looms along the Missouri River (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

ALCON,

Today's media coverage:

OUTLET: NBC Nightly News (TV)  
DATE: 08 JUNE 2011  
REPORTER: Miguel Almaguer  
SME: [REDACTED]  
TYPE: Video  
BROADCAST: 1730 Local time (see link below for video)  
QUESTIONS: 1. How are the levees doing?  
RESPONSES: The levees are doing good.  
NOTES: Reporter asked for a quick update on the status of the levees and the Missouri River for an "update broadcast." Quote used from our SME during broadcast.

Rain threatens Missouri River flood zone A Montana weather forecast calling for more rain is putting more strain on the rising Missouri River. NBC's Miguel Almaguer reports.  
<http://www.msnbc.msn.com/id/3032619/vp/43332607#43332607>

TONE: NEUTRAL

//////////////////BREAK//////////////////

OUTLET: AP (Wire service)  
DATE: 08 JUNE 2011  
REPORTER: Chet Brokaw  
SME: [REDACTED]  
TYPE: Phone interview  
BROADCAST: Not provided. No article found as of 1840.  
QUESTIONS: 1. What is are the lengths of the tunnels that make up the Stilling Basin?  
                  A. 1 mile  
                  2. The diameter?  
                  A. 19 1/2 ft  
                  3. The velocity?  
                  A. 42 mph at each tunnel.  
                  4. The arrangement of a parking lot created near one of the access roads?  
                  A. No issues. Grass was cut to create a parking area on one of the access roads to minimize vehicles stopping on the main road above the Stilling Basin.  
NOTES: None.

V/R,

Carlos J. Lazo  
Public Affairs Specialist  
Work Cell: (916) 307-8738  
[carlos.j.lazo@usace.army.mil](mailto:carlos.j.lazo@usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

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Caveats: NONE

[REDACTED] NWO

---

From: [REDACTED] HQ02  
Sent: Wednesday, June 08, 2011 6:55 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Subject: FW: For your review (UNCLASSIFIED)

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- o Increase to 135,000 cfs on Friday

• The River Forecast Center (RFC) has acknowledged the applied numerical correction (manual shift) in consideration of observed changes to Missouri River dynamics. The shift has been applied to the U.S. Geological Survey (USGS) rating curve and adopted by the National Weather Service (NWS), for application to forecasting river stage in the Bismarck/Mandan area. Commensurate with the revised rating curve is today's 17.4 feet and forecasts for 18 feet on Sunday, followed by 19 feet on June 18.

• Fort Peck Reservoir is experiencing high inflows due to recent rain. As a result, the forecasted discharge tomorrow is 55,000 cfs, with a sustained discharge of 60,000 cfs at

least through the middle of July. This release schedule has not impacted the release schedule from Garrison Dam.

Tom Doering

N.D. Department of Emergency Services

Division of Homeland Security

[tdoering@nd.gov](mailto:tdoering@nd.gov)

701-328-8206 (desk)

701-595-1016 (cell)

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Fredlund, Diana J NWP  
**Sent:** Wednesday, June 08, 2011 6:15 PM  
**To:** Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** Revised news release - please review this one (UNCLASSIFIED)  
**Attachments:** FP PA-02a.docx

Classification: UNCLASSIFIED  
Caveats: NONE

John had a change to his quote which is reflected in this draft. After your review I will distribute.

Thanks,  
Diana  
Diana J. Fredlund  
Public Affairs Specialist  
Fort Peck Project  
U.S. Army Corps of Engineers, Omaha District  
Phone: (406) 526-3411 Ext. 4285  
Cell phone: (406) 526-7308  
To learn more about our flood response, visit our website at [www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Fredlund, Diana J NWP  
**Sent:** Wednesday, June 08, 2011 5:55 PM  
**To:** Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** Fort Peck news release (UNCLASSIFIED)  
**Attachments:** FP PA-02.docx

**Importance:** High

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, Monique,

[REDACTED] is in an interview with the Billings Gazette and hasn't seen this but I wanted to keep it moving. I took your information from the email, Jody. Let me know if anything needs changing. As soon as you and John OK it I'll send it out right after the meeting.

Thanks,  
Diana

Diana J. Fredlund  
Public Affairs Specialist  
Fort Peck Project  
U.S. Army Corps of Engineers, Omaha District  
Phone: (406) 526-3411 Ext. 4285  
Cell phone: (406) 526-7308  
To learn more about our flood response, visit our website at [www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 5:52 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED]  
[REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T  
NWO; [REDACTED] NWD; [REDACTED] NWK; [REDACTED] NWK; Williamson, Eileen  
L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED]  
NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 8 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 8 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**8 June 2011**

This afternoon we posted an updated reservoir forecast on our website which shows another change in our release schedule at Fort Peck dam in Montana. Due to heavy rain in Montana yesterday, some of which fell directly over the reservoir, inflows to that project today were double yesterday's rate. Inflows to Fort Peck are expected to remain above previously forecasted levels for the next 6 to 8 days due to yesterday's rain, combined with the additional rain discussed previously by the HPC and some snowmelt runoff.

As a result we are increasing Fort Peck releases sooner and to a higher level than shown on yesterday's forecast. The current schedule is to increase to 55,000 cfs tomorrow and 60,000 cfs on Friday. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we will wait for the inflow forecast to verify over the next day or two before making that decision.

This increase in Fort Peck releases will allow us to better balance the flood storage in Fort Peck and Garrison reservoirs but will not result in a change in releases at Garrison or any of the other 5 mainstem dams.

The planned peak release of 150,000 cfs from Garrison, Oahe, Big Bend, Fort Randall and Gavins Point is still valid and absolutely necessary.

The Omaha District is currently in the process of assessing the likely impacts of the increase on communities downstream of Fort Peck Dam.

Planned releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:

- Fort Peck –Releases today 50,000 cfs, increasing to 55,000 cfs on tomorrow and 60,000 cfs on Friday.
- Garrison –130,000 cfs today, holding at that level tomorrow, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, increasing to 140,000 cfs tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 140,000 cfs today, holding 140,000 cfs tomorrow, then gradually stepping up to the peak release of 150,000 cfs by the middle of next week.

There are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

We remind you that our updated forecast will be posted on the web each afternoon.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

Peak releases are expected to continue well into August.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
  - We had no basis on which to justify record releases prior to the repeated rounds of heavy rain in May. Regulation of the reservoir system is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.
  - Peak Releases for the basic and upper basic runoff condition in our April 1 forecast were as follows:
    - Fort Peck: 11,000 cfs basic, 18,000 cfs upper basin
    - Garrison: 30,500 cfs basic, 41,500 cfs upper basic
    - Oahe: 41,800 cfs basic, 55,300 cfs upper basin
    - Big Bend: 41,400 cfs basic, 55,000 cfs upper basin
    - Fort Randall: 43,800 cfs basic, 57,700 cfs upper basic
    - Gavins Point: 45,000 cfs basic, 59,500 cfs upper basic
  - Peak Releases for the basic and upper runoff condition in our May 1 forecast were as follows:
    - Fort Peck: 20,000 cfs basic, 26,000 cfs upper basin
    - Garrison: 49,000 cfs basic, 61,500 cfs upper basic
    - Oahe: 54,100 cfs basic, 62,400 cfs upper basin
    - Big Bend: 54,000 cfs basic, 63,500 cfs upper basin
    - Fort Randall: 56,100 cfs basic, 66,200 cfs upper basic
    - Gavins Point: 57,500 cfs basic, 68,000 cfs upper basic
  - Mountain snowpack was tracking slightly above normal through early April, and then rose dramatically between mid-April and early May.
    - Jan 1 Snowpack = 112% FTPK, 120% GARR
    - Feb 1 Snowpack = 112% FTPK, 111% GARR
    - Mar 1 Snowpack = 109% FTPK, 106% GARR
    - Apr 1 Snowpack = 116% FTPK, 112% GARR
    - May 1 Snowpack = 141% FTPK, 136% GARR
    - Peak Snowpack = 141% FTPK on May 2, 136% GARR on May 2
  - At no time prior to mid May did we anticipate needing record releases from the mainstem reservoir system.
- Will this change the way the reservoir system is operated in future years?
  - The reservoir system has been operated in accordance with the Master Manual. The Master Manual Review and Update study, which was conducted between 1989 and 2004, analyzed the potential to provide additional flood control storage

by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

- 2011 is a new data point in the history of the Missouri River basin, both in terms of hydrology and flood plain impacts, and this event will certainly be studied in the future. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.
- Did you store water to help out the flooding on the Mississippi River?
  - We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for the benefit of the Mississippi River.
- Were releases held back earlier in the season to protect nesting least terns and piping plovers?
  - No operational decisions this year were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.

#### Climatic Conditions

- This flood event was due to repeated rounds of heavy rain, coupled with near record plains snowpack which filled up virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff. Mountain snowpack accumulation is much above normal and continued to accumulate well into May, reaching record levels in some areas. In addition, the melt has been delayed, increasing the likelihood of a rapid melt.
- Snowpack is well above historic levels and has only just begun to melt in others
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak
  - Garrison - crested at 141% of peak; currently 113% of the normal peak
- May 2011 runoff in the Missouri River basin above Sioux City was 10.5 MAF; the previous record May inflow was 7.2 MAF (1995)
  - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
  - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

#### Reservoir Releases

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- How long will the high flows continue?
  - High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
  - We don't have an exact schedule at this time. It will certainly depend on how the project facilities and the system of risk reduction measures performs with the high flows as well as runoff conditions in the coming months.
  - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997
  
- Master Manual: We have received numerous questions from the media and the public about how we manage water releases from our reservoirs. I would just like to reemphasize that all of these decisions are based on the Master Manual, which is a water control plan that helps guide how much water should be released, when, and for how long from our reservoirs for the benefit of the entire Missouri River basin. The Master Manual is based on over 100 years of historical runoff records (1898-2004).

We revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were constructed.

- Duration: We are also getting many questions regarding the duration of the high flows. These peak releases will likely extend well into August. Our reservoir forecast posted on the web shows Fort Peck still in the surcharge pool, and Garrison and Oahe still in their exclusive flood control pools on 15 July. We need to maintain these high releases until the reservoirs are back down to a manageable level.

The other guiding principle here is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies to our mainstem dams as well as impacted communities, infrastructure and flood risk mitigation projects downstream of the dams. Over the next several days we will be looking at several scenarios for evacuating the flood water stored in the mainstem reservoir system and will provide better estimates when they become available.

**[REDACTED] NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 5:30 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** Mountain Snowpack - Month by Month (UNCLASSIFIED)  
**Attachments:** Mountain Snowpack - Month by Month.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

See what you think ...

V:\Public\Flood\_2011> Mountain Snowpack - Month by Month.pptx

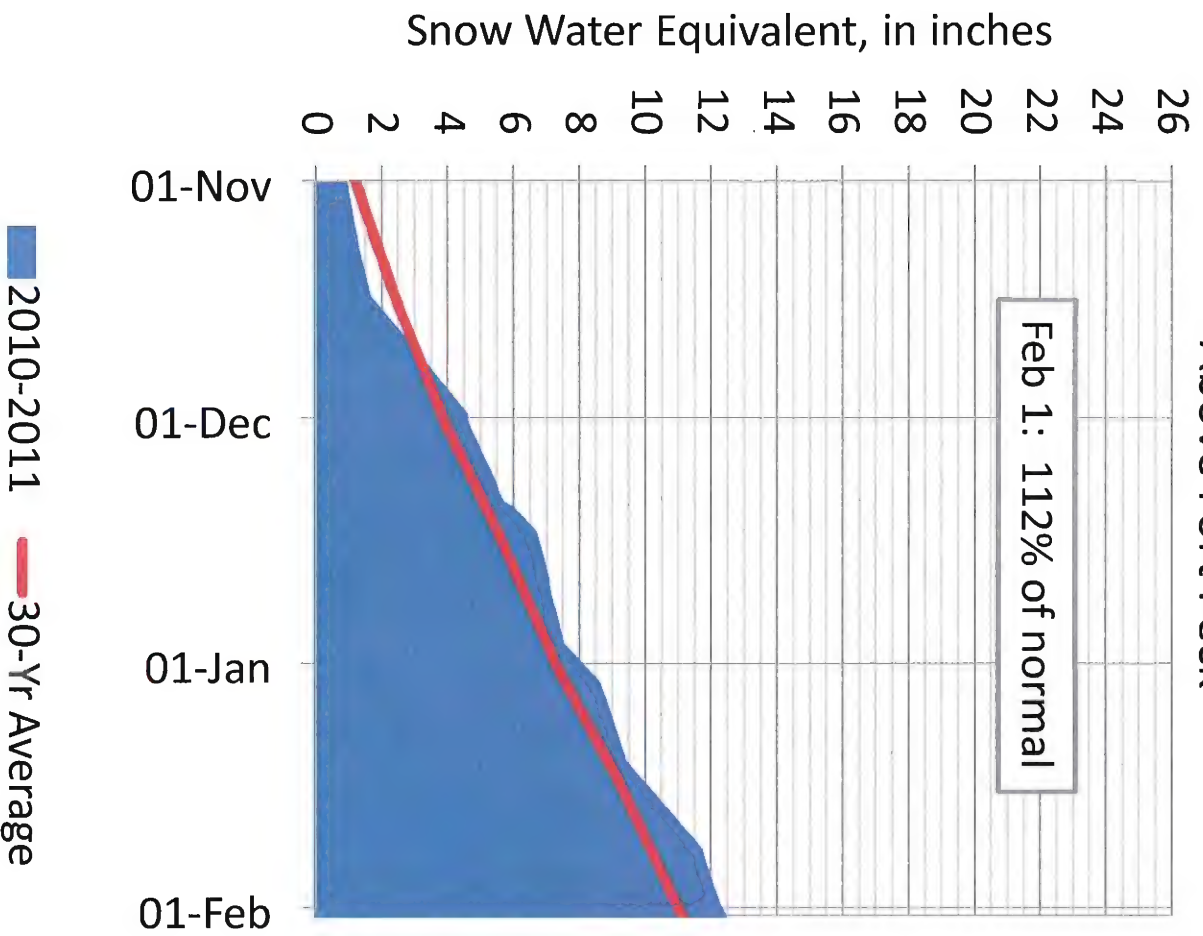
[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED]  
[REDACTED] (fax)

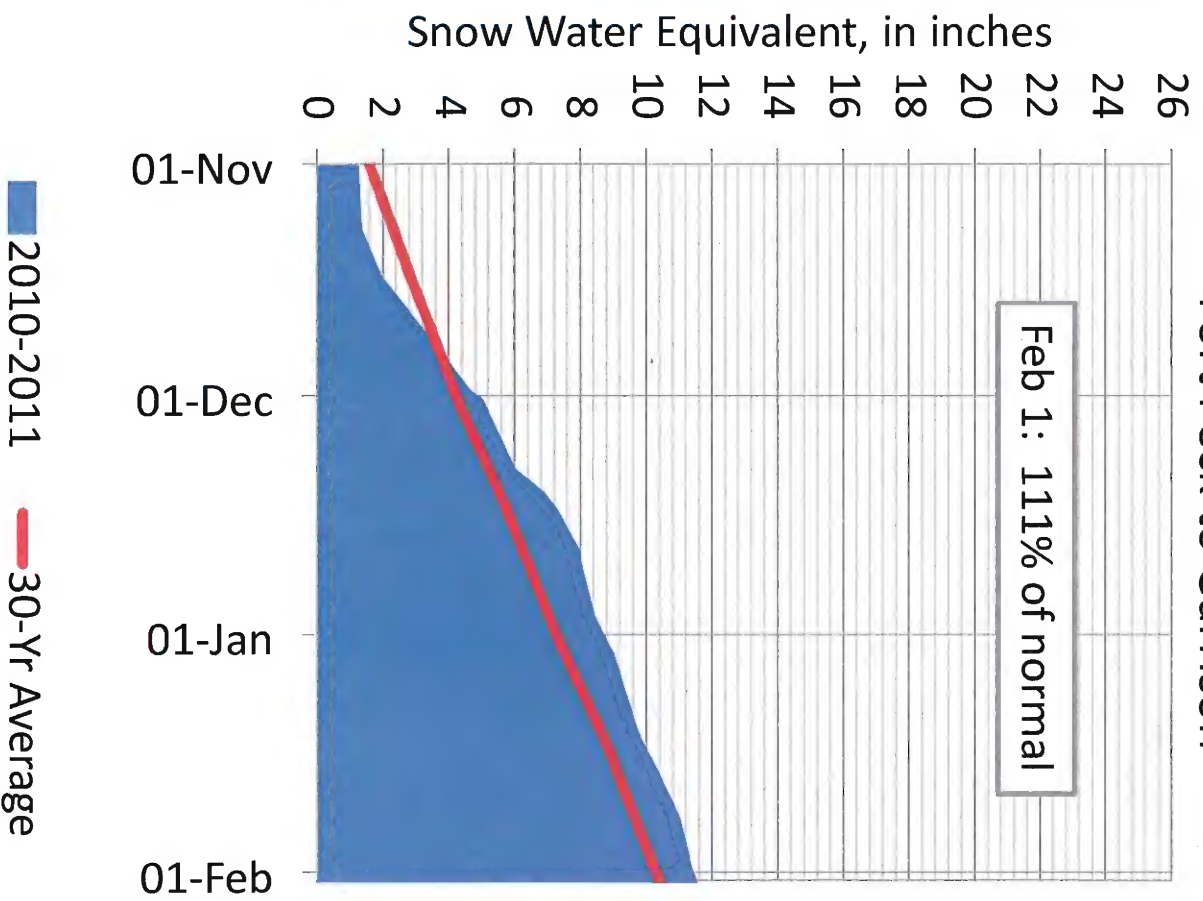
Classification: UNCLASSIFIED  
Caveats: NONE

# 2010 – 2011 Mountain Snowpack

Above Fort Peck

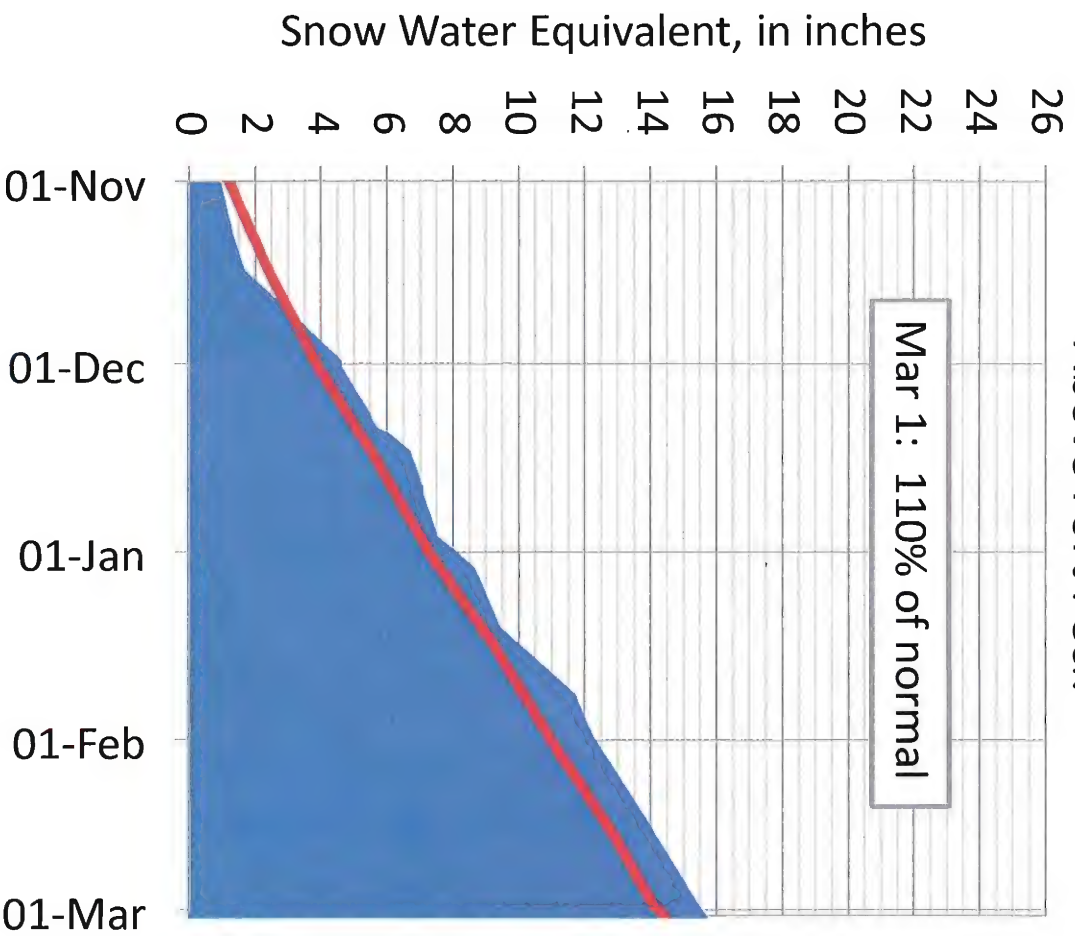


Fort Peck to Garrison

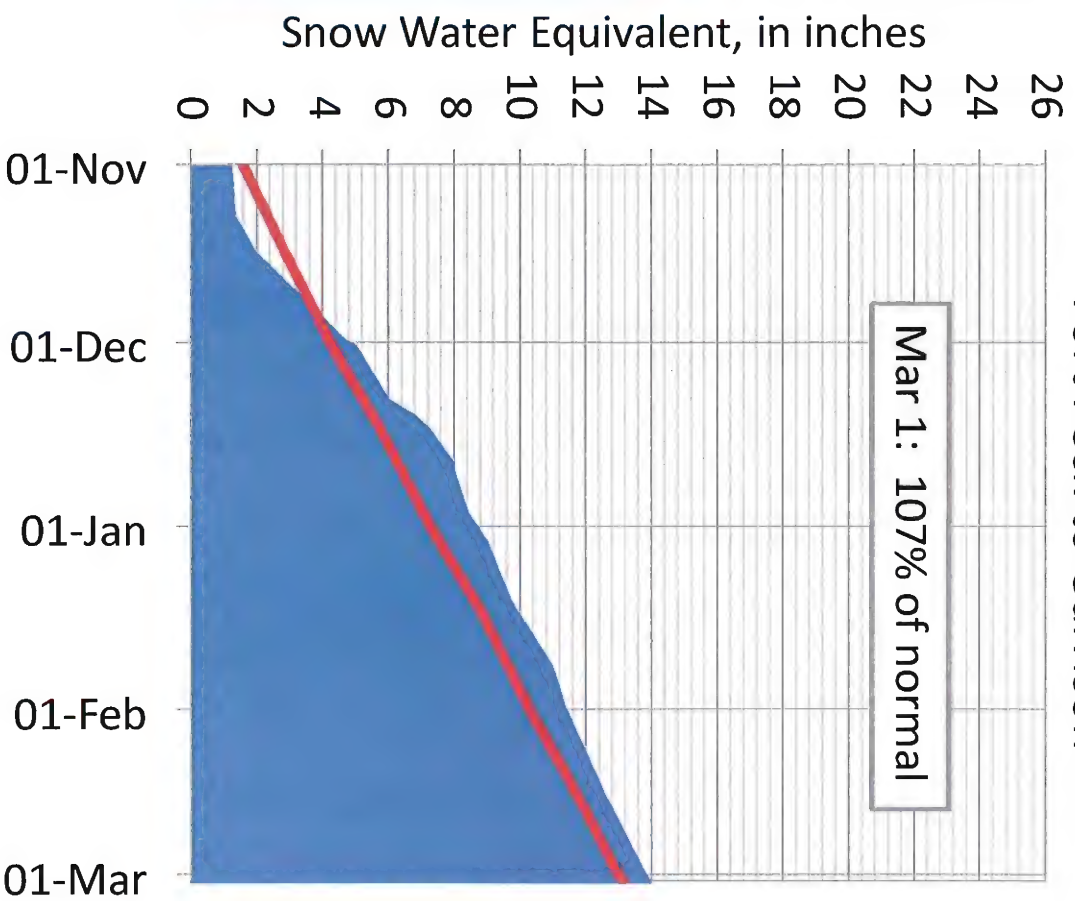


# 2010 – 2011 Mountain Snowpack

Above Fort Peck



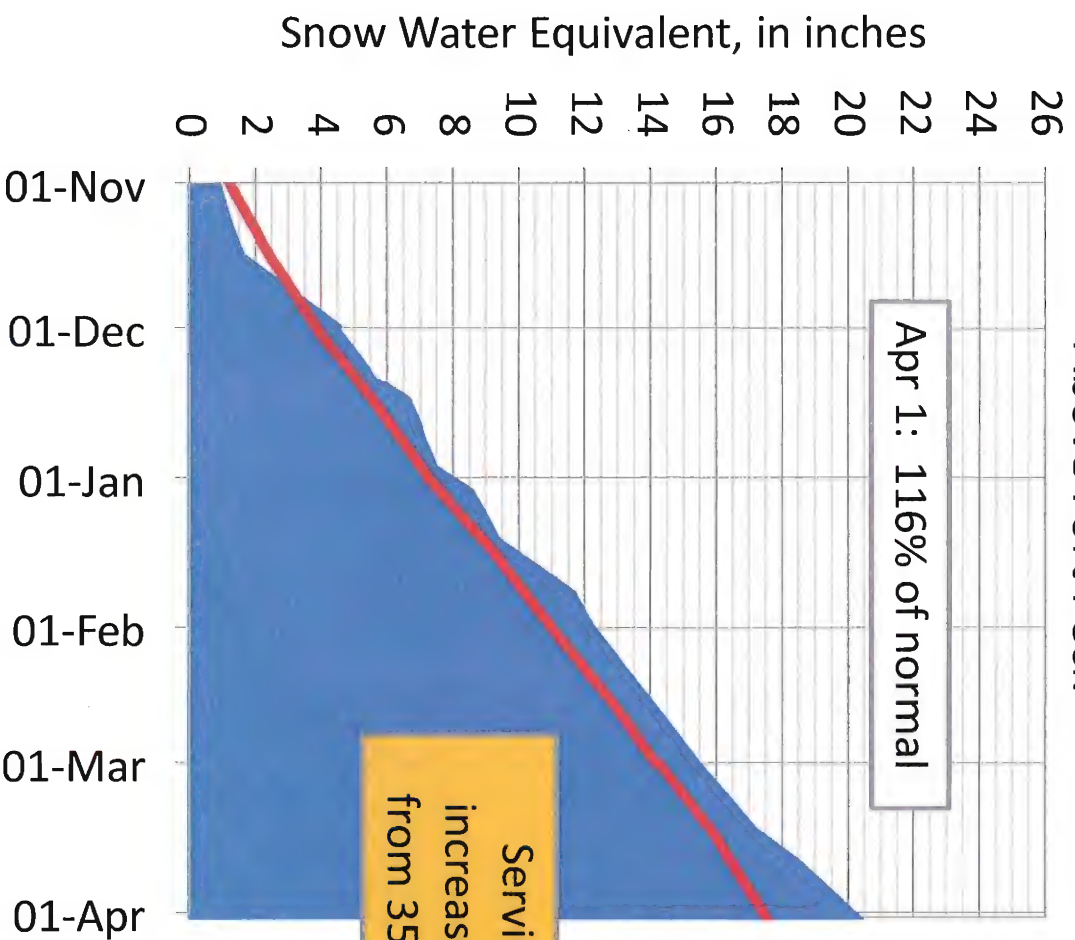
Fort Peck to Garrison



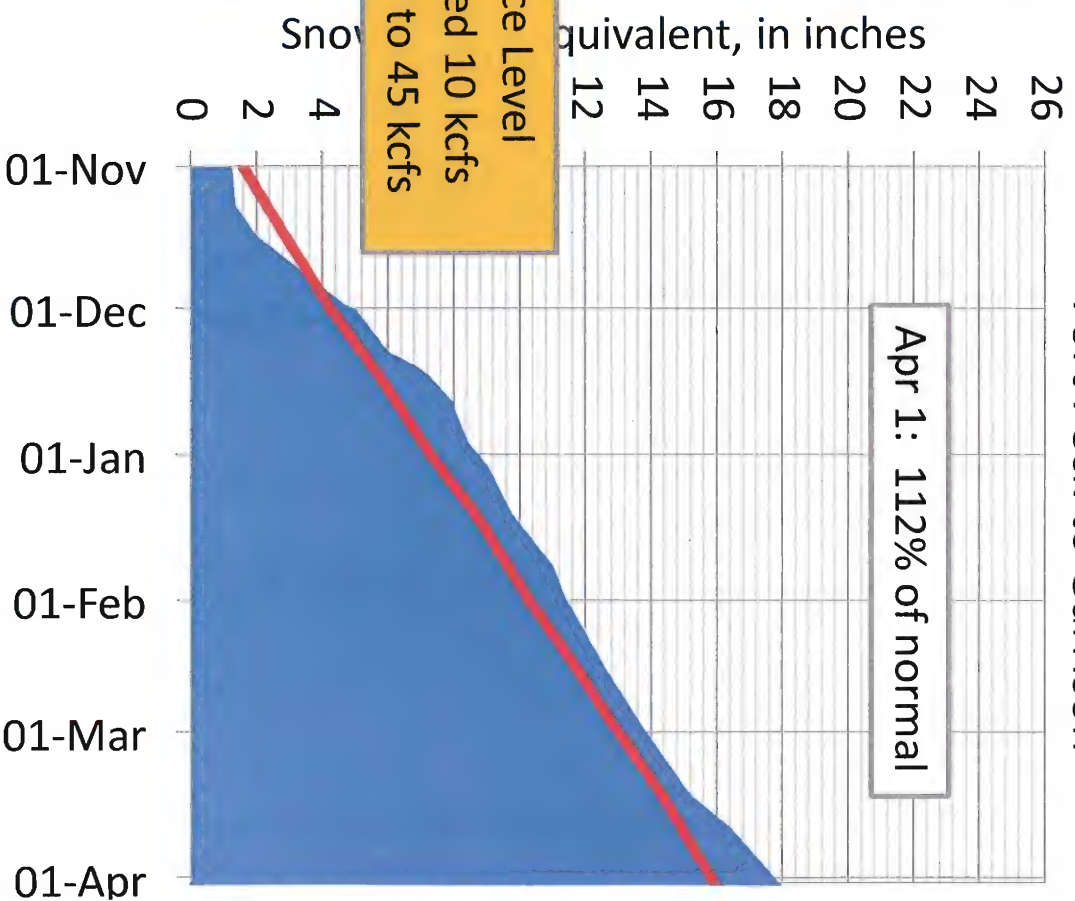


# 2010 – 2011 Mountain Snowpack

Above Fort Peck



Fort Peck to Garrison

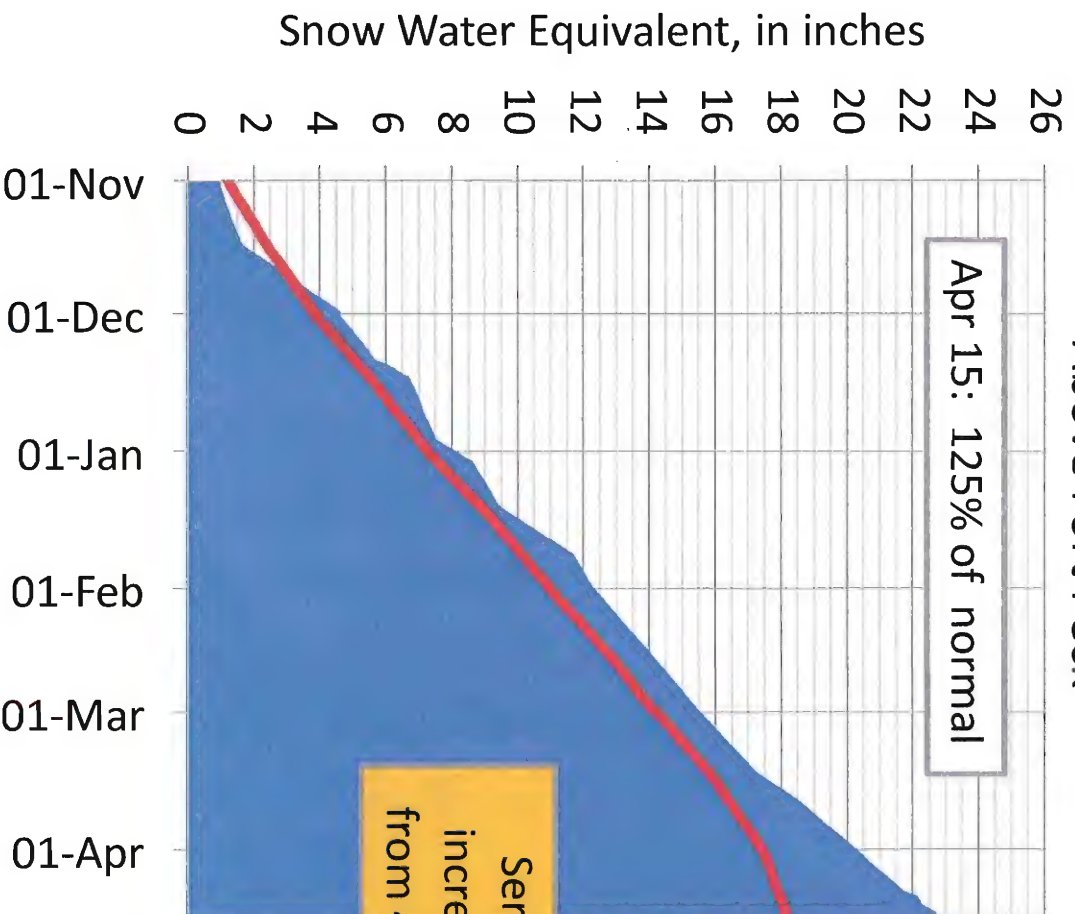


2010-2011 30-Yr Average

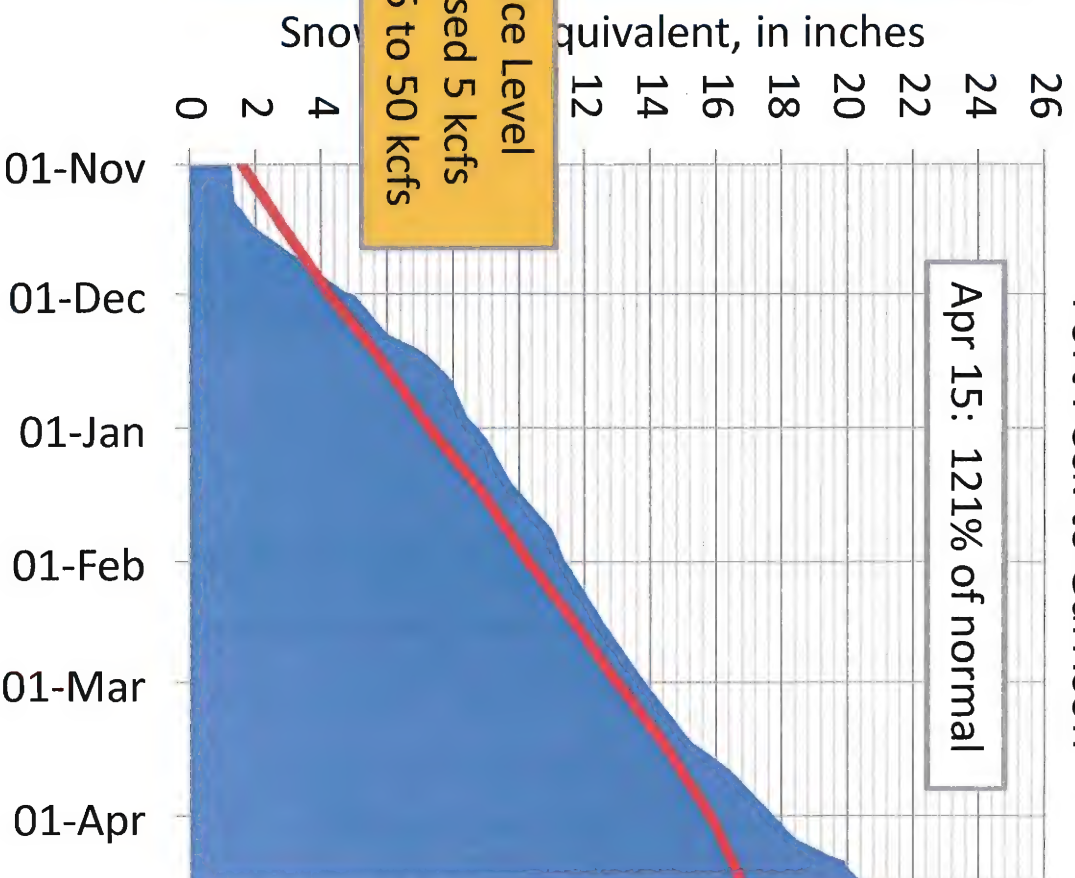
2010-2011 30-Yr Average

# 2010 – 2011 Mountain Snowpack

## Above Fort Peck



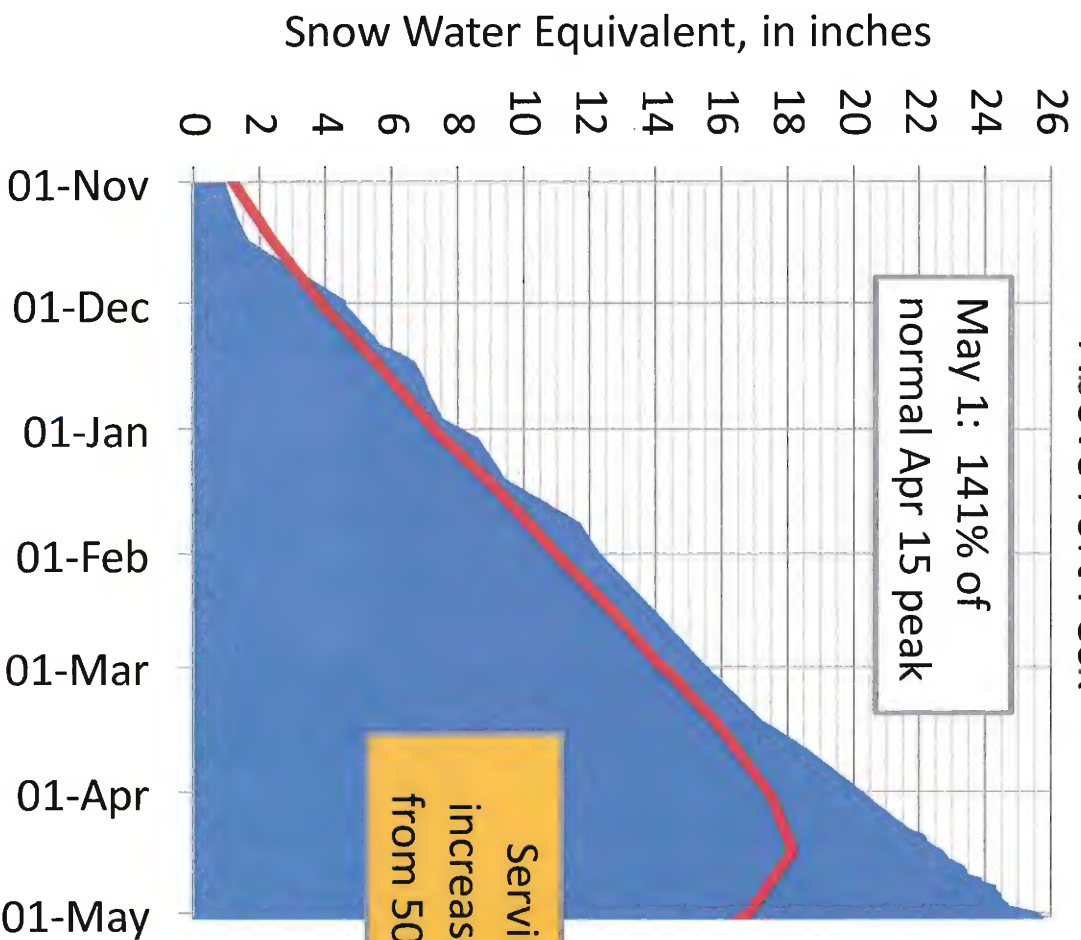
## Fort Peck to Garrison



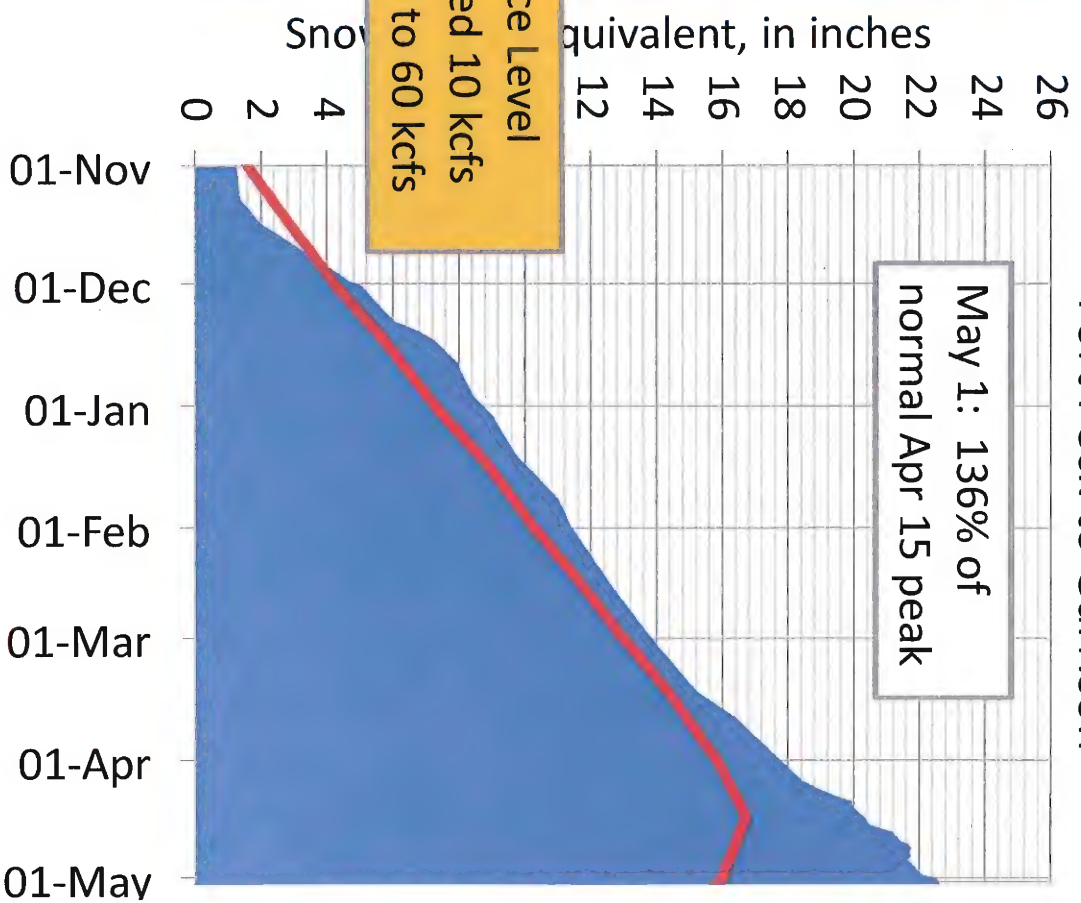
Service Level increased 5 kcfs from 45 to 50 kcfs

# 2010 – 2011 Mountain Snowpack

Above Fort Peck



Fort Peck to Garrison



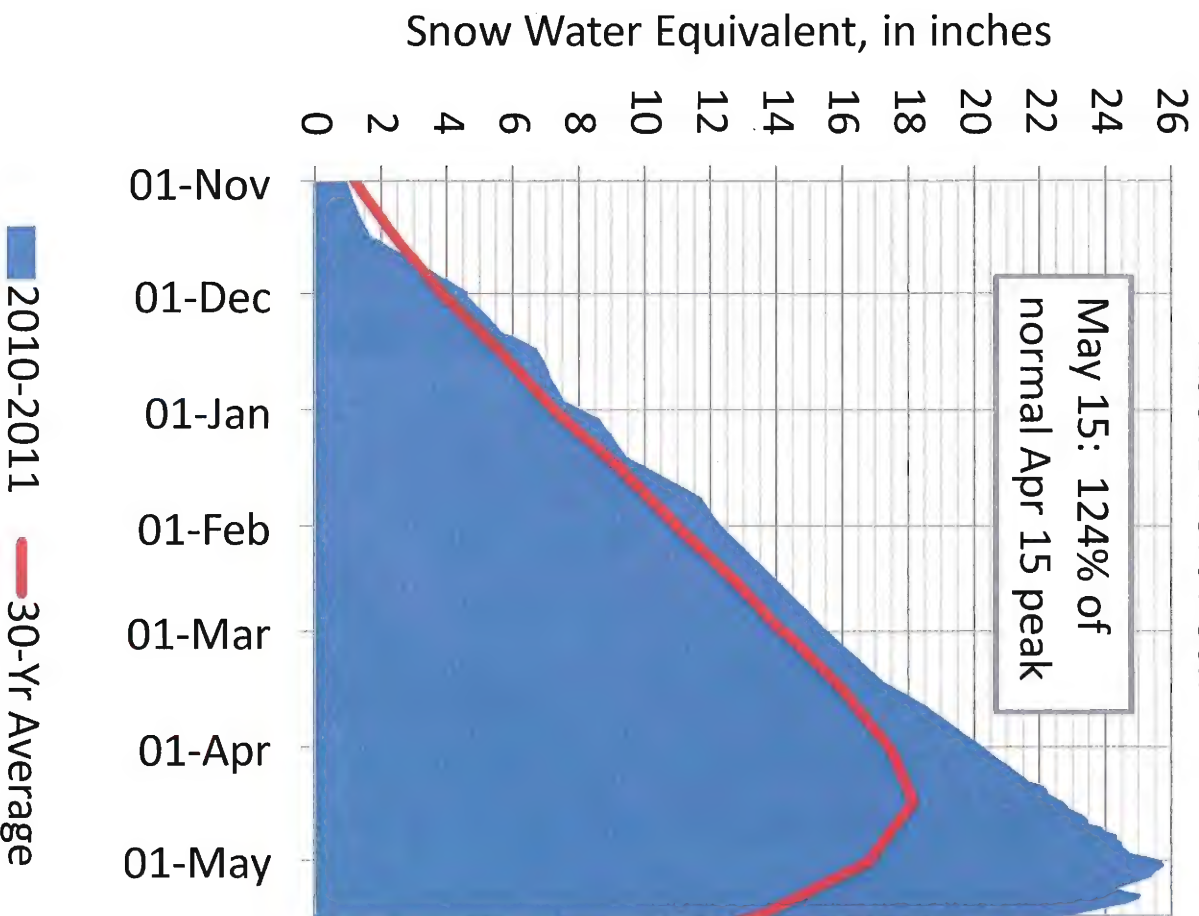
2010-2011 30-Yr Average

2010-2011 30-Yr Average

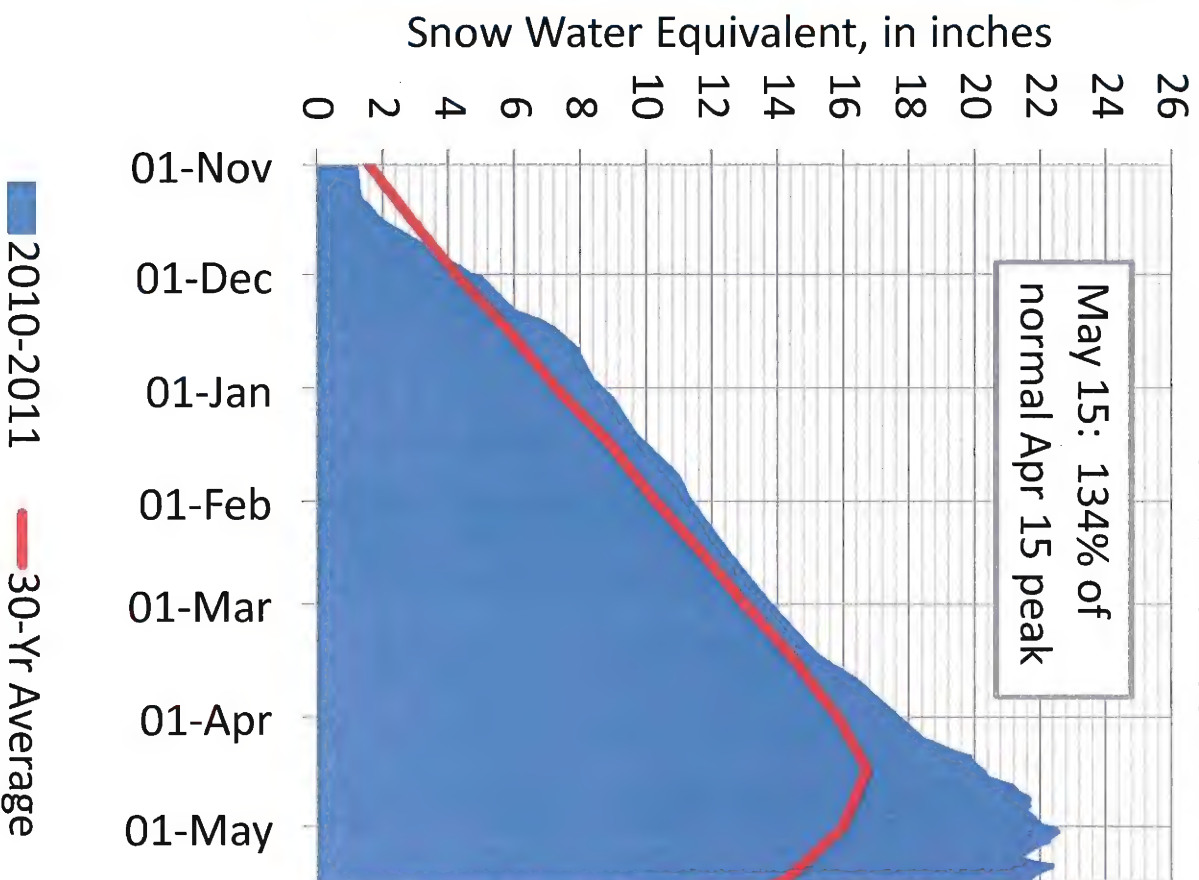


# 2010 – 2011 Mountain Snowpack

Above Fort Peck

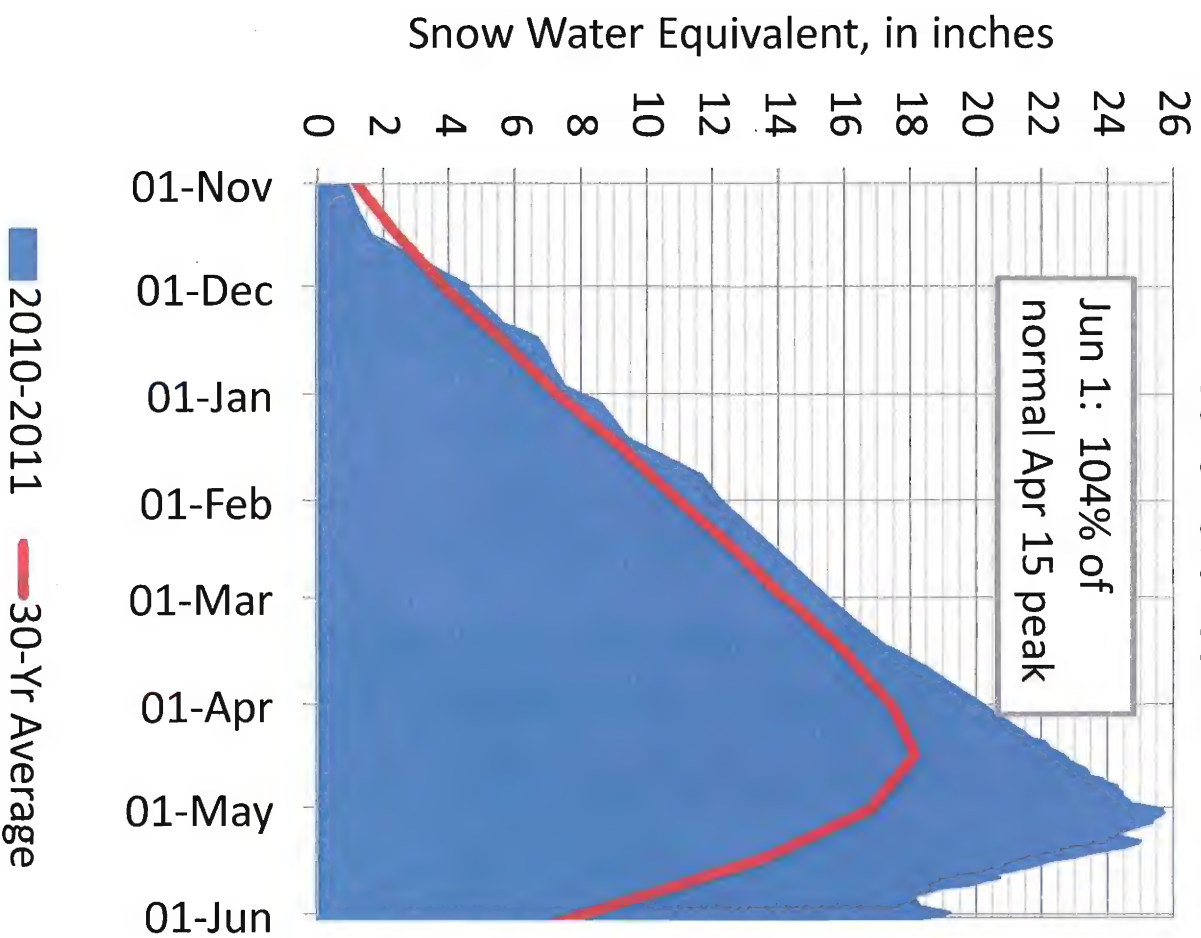


Fort Peck to Garrison

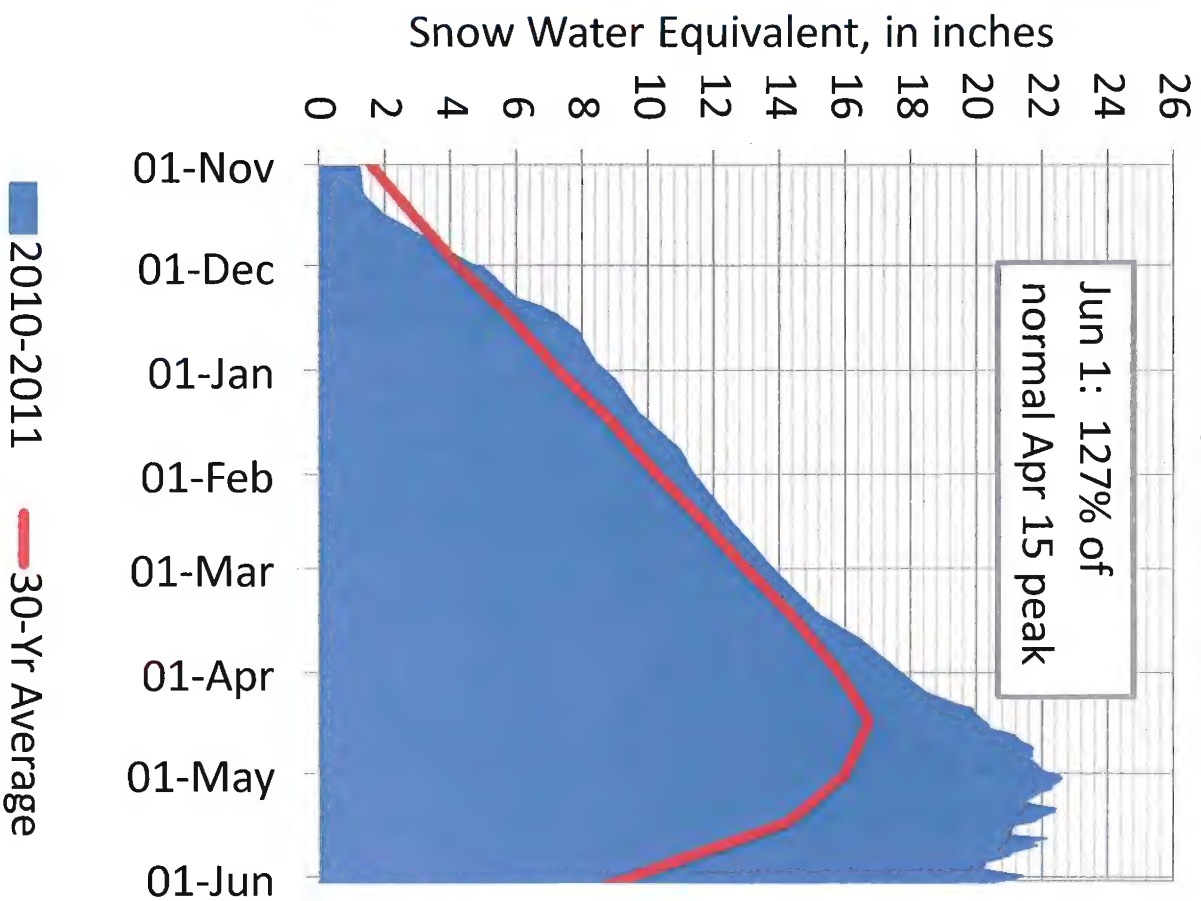


# 2010 – 2011 Mountain Snowpack

## Above Fort Peck



## Fort Peck to Garrison



**NWO**

---

**From:** [REDACTED] SAW  
**Sent:** Wednesday, June 08, 2011 5:28 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Yes. I hear that Tom Ingram will be there tomorrow as the Liaison. I will be there on Friday morning. I report to the state EOC in Lincoln.  
[REDACTED]

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** [REDACTED] SAW  
**Sent:** Wed Jun 08 17:17:44 2011  
**Subject:** RE: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Welcome back. Yes, things have changed a bit in 5 years. I'll add you to my list. Where will you be working? Lincoln?

Jody

-----Original Message-----

**From:** [REDACTED] SAW  
**Sent:** Wednesday, June 08, 2011 5:15 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Fw: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Good afternoon

Long time. I am being deployed to the Nebraska EOC as a team leader, similar to Mark Clark in North Dakota. Can you add me to your distribution list?  
The situation looks a little dicey - how it can change in 5 years from drought to more water than needed.  
Thanks  
[REDACTED]

----- Original Message -----

**From:** [REDACTED] HQ02  
**To:** [REDACTED] SAW  
**Sent:** Wed Jun 08 16:33:48 2011  
**Subject:** FW: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Some ongoing stuff on the upper Missouri

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 4:28 PM

To: Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] HQ02; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
M NWO  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
Subject: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

All - the latest forecast has been posted on the internet. Inflows into Fort Peck today were double what they were yesterday. As a result we are increasing Fort Peck releases high and sooner than shown on yesterday's forecast. The current schedule is to increase to 55,000 cfs tomorrow and 60,000 cfs on Friday. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we want to make sure the inflow forecast verifies before making that decision.

As a result of this change, the forecast shows once again utilizing some surcharge storage in Garrison - about 1/2 foot, but the important thing is that this change does not require a change in our planned peak releases at the other 5 projects. The planned peak release of 150,000 cfs from Garrison to Gavins is still valid.

Any questions, give me a call.

Jody

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 08, 2011 1:51 PM  
To: [REDACTED] NWO; [REDACTED] HQ02  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
Subject: RE: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

The talking points on peak releases are as follows:

- \* There are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.
- \* Peak releases have been increased at the uppermost dam, Fort Peck, but that increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

Jody

-----Original Message-----

From: [REDACTED] NWO  
Sent: Wednesday, June 08, 2011 11:35 AM  
To: Farhat, Jody S NWD02; [REDACTED] HQ02  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO

Subject: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

All,  
I just received a phone call from Representative Rick Berg. He said that he's been hearing comments that the Corps is going to crank up the releases from Garrison, beyond the 150,000 cfs because of the gains we've seen in channel efficiencies at Bismarck. I assured him that was not our current plan and conveyed that if things changed significantly enough that we had to go beyond 150,000 cfs releases, it would require a tremendous amount of coordination, and potentially added protective measures, as that flow would have to be passed through the entire system below Garrison.

He asked that whoever attends the Flood Update meeting in Bismarck tomorrow morning at 0900 hours, address this issue to end this rumor and put folks minds at ease. I told him that I'd pass this on. Mark, I'm assuming you will be attending the meeting tomorrow for Matt, since he's headed back to Omaha? Jody, can you provide the talking points to Mark so he can address this, as requested by the Representative Berg?

Thanks,  
[REDACTED]

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO



**NWO**

**From:** [REDACTED] SAW  
**Sent:** Wednesday, June 08, 2011 5:15 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Fw: Release changes at Fort Peck ONLY (UNCLASSIFIED)  
**Attachments:** 9 Jun 2011 Flood Update.docx

Good afternoon

Long time. I am being deployed to the Nebraska EOC as a team leader, similar to Mark Clark in North Dakota. Can you add me to your distribution list?

The situation looks a little dicey - how it can change in 5 years from drought to more water than needed.

Thanks  
[REDACTED]

----- Original Message -----

**From:** [REDACTED] HQ02  
**To:** [REDACTED] SAW  
**Sent:** Wed Jun 08 16:33:48 2011  
**Subject:** FW: Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Some ongoing stuff on the upper Missouri

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 4:28 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] HQ02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
**Subject:** Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

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As a result of this change, the forecast shows once again utilizing some surcharge storage in Garrison - about 1/2 foot, but the important thing is that this change does not require a change in our planned peak releases at the other 5 projects. The planned peak release of 150,000 cfs from Garrison to Gavins is still valid.

Any questions, give me a call.

Jody

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Wednesday, June 08, 2011 1:51 PM

To: [REDACTED] NWO; [REDACTED] HQ02

Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO

Subject: RE: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

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\* Peak releases have been increased at the uppermost dam, Fort Peck, but that increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

Jody

-----Original Message-----

From: [REDACTED] NWO

Sent: Wednesday, June 08, 2011 11:35 AM

To: Farhat, Jody S NWD02; [REDACTED] HQ02

Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO

Subject: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

All,  
I just received a phone call from Representative Rick Berg. He said that he's been hearing comments that the Corps is going to crank up the releases from Garrison, beyond the 150,000 cfs because of the gains we've seen in channel efficiencies at Bismarck. I assured him that was not our current plan and conveyed that if things changed significantly enough that we had to go beyond 150,000 cfs releases, it would require a tremendous amount of coordination, and potentially added protective measures, as that flow would have to be passed through the entire system below Garrison.

He asked that whoever attends the Flood Update meeting in Bismarck tomorrow morning at 0900 hours, address this issue to end this rumor and put folks minds at ease. I told him that I'd pass this on. Mark, I'm assuming you will be attending the meeting tomorrow for Matt, since he's headed back to Omaha? Jody, can you provide the talking points to Mark so he can address this, as requested by the Representative Berg?

Thanks,

[REDACTED]

[REDACTED].

Operations Project Manager  
Garrison Project

Flood Update:

Tuesday, June 9<sup>th</sup>, 2011

**Points of Emphasis:**

- Spillway is flowing, all gates are open, no issues. Repairs to spillway slab appear to be holding well.
- There are many rumors floating around about the peak releases from the mainstem reservoirs. Based on the latest forecast, the highest level of release currently anticipated remains 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.
- Peak releases have been increased at the uppermost dam, Fort Peck, but that increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.
- The release schedule is still being followed. Peak releases of 150,000 cfs are certain for the lower 5 dams on the system. These flows will continue through at least mid-August. The reason for this is to move the bulk of the flood water through the system by early fall so that flooded areas can dry out and damage can be inspected and repaired in preparation for next year.
- The levee surveillance training has been completed.

**Current Conditions:**

**Fort Peck (Exclusive 2246-2250)**

Pool:	Inflows:	Releases:
2250.9	101,000	48,500 → 50,000

**Garrison (Exclusive 1850-1854)**

Pool:	Inflows:	Releases:
1853.4	104,000	125,400 → 130,000

**Oahe (Exclusive 1617-1620)**

Pool:	Inflows:	Releases:
1619.1	144,000	147,000 → 150,000

**Current Garrison Release Schedule:**

- Garrison releases currently at 130,000 cfs. (will maintain until Friday)
- 135,000 cfs Friday June 10.
- 140,000 cfs Wednesday June 15.
- 145,000 cfs Thursday June 16
- 150,000 cfs Friday June 17.
- Fort Peck - 55,000 CFS Friday June 10.

#### Other Topics

- 
- 

#### Facts:

- Corps is building levees to protect to a river stage of 20.6 at the Bismarck gage.
- Garrison spillway has 28 tainter gates, (40X29 feet).
- 150,000 cfs is equivalent to 1,122,000 gallons every second.

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 4:28 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] J NWO; [REDACTED] HQ02; [REDACTED] NWO; [REDACTED] D NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] S NWO; [REDACTED] A SWF; [REDACTED] NWO  
**Subject:** Release changes at Fort Peck ONLY (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

All - the latest forecast has been posted on the internet. Inflows into Fort Peck today were double what they were yesterday. As a result we are increasing Fort Peck releases high and sooner than shown on yesterday's forecast. The current schedule is to increase to 55,000 cfs tomorrow and 60,000 cfs on Friday. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we want to make sure the inflow forecast verifies before making that decision.

As a result of this change, the forecast shows once again utilizing some surcharge storage in Garrison - about 1/2 foot, but the important thing is that this change does not require a change in our planned peak releases at the other 5 projects. The planned peak release of 150,000 cfs from Garrison to Gavins is still valid.

Any questions, give me a call.

Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 1:51 PM  
**To:** [REDACTED] NWO; [REDACTED] HQ02  
**Cc:** [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
**Subject:** RE: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

The talking points on peak releases are as follows:

\* There are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

\* Peak releases have been increased at the uppermost dam, Fort Peck, but that increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

Jody

-----Original Message-----

From: [REDACTED] NWO  
Sent: Wednesday, June 08, 2011 11:35 AM  
To: Farhat, Jody S NWD02; [REDACTED] HQ02  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
Subject: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

All,  
I just received a phone call from Representative Rick Berg. He said that he's been hearing comments that the Corps is going to crank up the releases from Garrison, beyond the 150,000 cfs because of the gains we've seen in channel efficiencies at Bismarck. I assured him that was not our current plan and conveyed that if things changed significantly enough that we had to go beyond 150,000 cfs releases, it would require a tremendous amount of coordination, and potentially added protective measures, as that flow would have to be passed through the entire system below Garrison.

He asked that whoever attends the Flood Update meeting in Bismarck tomorrow morning at 0900 hours, address this issue to end this rumor and put folks minds at ease. I told him that I'd pass this on. Mark, I'm assuming you will be attending the meeting tomorrow for Matt, since he's headed back to Omaha? Jody, can you provide the talking points to Mark so he can address this, as requested by the Representative Berg?

Thanks,  
[REDACTED]

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 4:19 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: COL RUCH OP-ED PIECE -- Latest draft. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks!

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 4:06 PM  
**To:** Quinn, Kevin R NWO  
**Cc:** [REDACTED] NWD  
**Subject:** FW: COL RUCH OP-ED PIECE -- Latest draft. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin, my only change is that it is record runoff rather than near-record runoff.

I'm forwarding to Christina to see if she has any suggested edits.

Thanks,  
Jody

-----Original Message-----

**From:** Quinn, Kevin R NWO  
**Sent:** Wednesday, June 08, 2011 3:32 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO;  
[REDACTED] NWO  
**Subject:** COL RUCH OP-ED PIECE -- Latest draft. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Please review. You can make track changes if you want, or just mark it with a pen and I'll come get it.

Kq  
2419

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Williamson, Eileen L NWO  
**Sent:** Wednesday, June 08, 2011 3:47 PM  
**To:** [REDACTED] NWD02; CENWO-EOC NWO; [REDACTED] MVR; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] K NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Please include Jennifer Salak on further distributions

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 8:47 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/7 Pool Elev: 2250.9 ft-msl

24-hr change: 0.4'

6/7 Ave Inflow: 101,000 cfs

6/7 Ave Release: 48,500 cfs

6/8 Scheduled Release: 50,000 cfs

Garrison Dam (ND)

6/7 Pool Elev: 1853.4 ft-msl

24-hr change: 0.0

6/7 Ave Inflow: 104,000 cfs



6/7 Ave Release: 125,400 cfs

6/8 Scheduled Release: 130,000 cfs

Oahe Dam (SD)

6/7 Pool Elev: 1619.1 ft-msl

24-hr change: -0.1'

6/7 Ave Inflow: 144,000 cfs

6/7 Ave Release: 147,000 cfs

6/8 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/7 Pool Elev: 1419.7 ft-msl

24-hr change: 0.4'

6/7 Ave Inflow: 143,000 cfs

6/7 Ave Release: 131,900 cfs

6/8 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/7 Pool Elev: 1360.8 ft-msl

24-hr change: 0.1'

6/7 Ave Inflow: 143,000 cfs

6/7 Ave Release: 132,700 cfs

6/8 Scheduled Release: 137,000 cfs

Gavins Point Dam (NE-SD)

6/7 Pool Elev: 1206.8 ft-msl

24-hr change: 0.3'

6/7 Ave Inflow: 129,000 cfs

6/7 Ave Release: 125,500 cfs

6/8 Scheduled Release: 140,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

From: [REDACTED] NWO  
Sent: Wednesday, June 08, 2011 3:45 PM  
To: Farhat, Jody S NWD02  
Subject: RE: Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I have [REDACTED] modeling 60 kcfs. We can probably have it tomorrow.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 08, 2011 3:28 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] John K NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] HQ02  
Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] Jr NWO; [REDACTED], [REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
Subject: Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir - another update on Fort Peck releases. Due to the high inflows into Fort Peck, we need to show increasing releases from Fort Peck to 55,000 cfs tomorrow (Thursday) and 60,000 cfs on Friday. Inflows today were double yesterday's and are forecast to remain well above previously forecasted levels for the next 6 to 8 days. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we will hold on that decision until we see if the forecasted inflows materialize in the next day or two.

This increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

VR,  
Jody

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Tuesday, June 07, 2011 2:31 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO

Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED]  
[REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWD02

Subject: Heads up on release schedule change at Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sir - just a quick heads up before the 1640 Exec CMT call. Today's forecast indicates the need to increase Fort Peck's peak releases from the current rate of 50,000 cfs to 55,000 cfs on Friday of this week. The change is due to continued high runoff into Fort Peck reservoir this week including significant rain directly over the reservoir in the last 24 hours. Garrison's inflows have been averaging a little below forecasted levels so Fort Peck releases will be increased to better balance the remaining storage between FTPK and GARR.

I'll talk about this change on the call tonight and Kevin Quinn is working on a press release.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** Quinn, Kevin R NWO  
**Sent:** Wednesday, June 08, 2011 3:32 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
NWO; [REDACTED] NWO  
**Subject:** COL RUCH OP-ED PIECE -- Latest draft. (UNCLASSIFIED)  
**Attachments:** RUCH OP-ED Article 6-8-11.docx

Classification: UNCLASSIFIED

Caveats: NONE

Please review. You can make track changes if you want, or just mark it with a pen and I'll come get it.

Kq

2419

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 08, 2011 3:30 PM  
**To:** Farhat, Jody S NWD02; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] HQ02  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** Re: Update on Fort Peck releases (UNCLASSIFIED)

Roger, Jody. Do it. Thanks.  
Vr/John McMahon

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] HQ02  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Sent:** Wed Jun 08 13:28:25 2011  
**Subject:** Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir - another update on Fort Peck releases. Due to the high inflows into Fort Peck, we need to show increasing releases from Fort Peck to 55,000 cfs tomorrow (Thursday) and 60,000 cfs on Friday. Inflows today were double yesterday's and are forecast to remain well above previously forecasted levels for the next 6 to 8 days. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we will hold on that decision until we see if the forecasted inflows materialize in the next day or two.

This increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

VR,  
Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Tuesday, June 07, 2011 2:31 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique

L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO  
Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED],  
[REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED]  
[REDACTED] S NWO; [REDACTED] NWD02

Subject: Heads up on release schedule change at Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sir - just a quick heads up before the 1640 Exec CMT call. Today's forecast indicates the need to increase Fort Peck's peak releases from the current rate of 50,000 cfs to 55,000 cfs on Friday of this week. The change is due to continued high runoff into Fort Peck reservoir this week including significant rain directly over the reservoir in the last 24 hours. Garrison's inflows have been averaging a little below forecasted levels so Fort Peck releases will be increased to better balance the remaining storage between FTPK and GARR.

I'll talk about this change on the call tonight and Kevin Quinn is working on a press release.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** Farmer, Monique L NWO  
**Sent:** Wednesday, June 08, 2011 3:29 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** Quinn, Kevin R NWO  
**Subject:** RE: Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin:

We will need an updated news release.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 3:28 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] HQ02  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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**From:** Farhat, Jody S NWD02  
**Sent:** Tuesday, June 07, 2011 2:31 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] John K NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Update on Fort Peck releases (UNCLASSIFIED)



Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] Jr NWO; [REDACTED]  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWD02

Subject: Heads up on release schedule change at Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

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Jody

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 3:28 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] HQ02  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** Update on Fort Peck releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Tuesday, June 07, 2011 2:31 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] WD02; [REDACTED] NWD02; [REDACTED] Jr NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** Heads up on release schedule change at Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir - just a quick heads up before the 1640 Exec CMT call. Today's forecast indicates the need to increase Fort Peck's peak releases from the current rate of 50,000 cfs to 55,000 cfs on Friday of this week. The change is due to continued high runoff into Fort Peck reservoir this week including significant rain directly over the reservoir in the last 24 hours. Garrison's inflows have been averaging a little below forecasted levels so Fort Peck releases will be increased to better balance the remaining storage between FTPK and GARR.

I'll talk about this change on the call tonight and Kevin Quinn is working on a press release.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 2:30 PM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR; Farhat, Jody S  
NWD02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED]  
[REDACTED] HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED] MVM  
**Cc:** [REDACTED] S NWO; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED]  
NWD02; [REDACTED] NWD02; [REDACTED] NWD-OMAHA; [REDACTED]  
NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] RMC; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED]  
E MVD; DLL-CELRD-RBW; Patriciawhitt@msn.com; [REDACTED] HQ02; [REDACTED]  
[REDACTED] HQ  
**Subject:** Missouri River Basin Water Management Division Situation Report of 6-8-11  
(UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-8-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] Eileen,

Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]  
[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-8-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Note the large increase in the inflows for Fort Peck Reservoir due to the heavy rainfall the day before in Montana. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/8/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	101.0	48.5	2250	2250.9	0.4
Garrison	104.0	125.4	1854	1853.4	0.0
Oahe	144.0	147.0	1620	1619.1	-0.1
Big Bend	143.0	131.9	1423	1419.7	0.4
Fort Randall	143.0	132.7	1375	1360.8	0.1
Gavins Point	129.0	125.5	1210	1206.8	0.3

Based on the current level data on the upper three reservoirs, the amount of remaining storage has diminished or is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use Oahe spillway at this time. Because the spillway gates are open at Fort Peck, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/8/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	18,685	18,463	-222	971	-23
Garrison	23,539	23,821	282	1,489	19
Oahe	22,797	23,137	340	1,102	31
Big Bend	1,605	1,798	193	60	100
Fort Randall	4,054	5,418	1,364	985	100
Gavins Point	362	450	88	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out are now at the currently anticipated maximum releases at all six reservoirs. Also note that the anticipated maximum for Fort Peck Reservoir increased from 50 to 55 kcfs. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/8/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 14 June kcfs	14 days out 21 June kcfs	Pre-2011 Record kcfs
Fort Peck	48.5	50.0	55	55	35
Garrison	125.4	130.0	150	150	65
Oahe	147.0	150.0	150	150	59
Big Bend	131.9	150.0	150	150	74
Fort Randall	132.7	137.0	148	148	67
Gavins Point	125.5	140.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

**Table 4. Missouri River Stage Data for 6/8/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.3	20-21	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	32.2	35-37	mid-Jun thru July
Decatur, NE	35	35.7	40-42	mid-Jun thru July
Omaha, NE	29	30.3	34-36	mid-Jun thru July
Nebraska City, NE	18	23.3	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.1	27-32	mid-Jun thru July
Kansas City, MO	32	26.8	30-39	mid-Jun thru July
Waverly, MO	20	25.2	27-31	mid-Jun thru July
Boonville, MO	21	23.0	27-33	mid-Jun thru July
Hermann, MO	21	23.1	27-33	mid-Jun thru July

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in Montana. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is yesterday's mountain snowpack update compiled by the Corps.

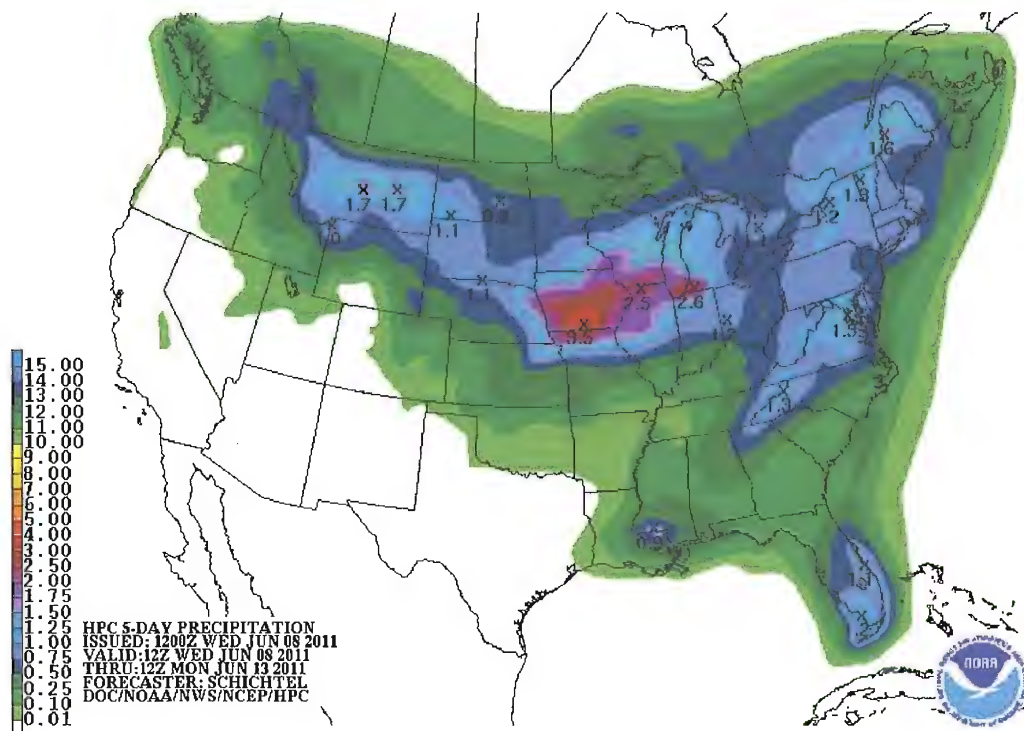
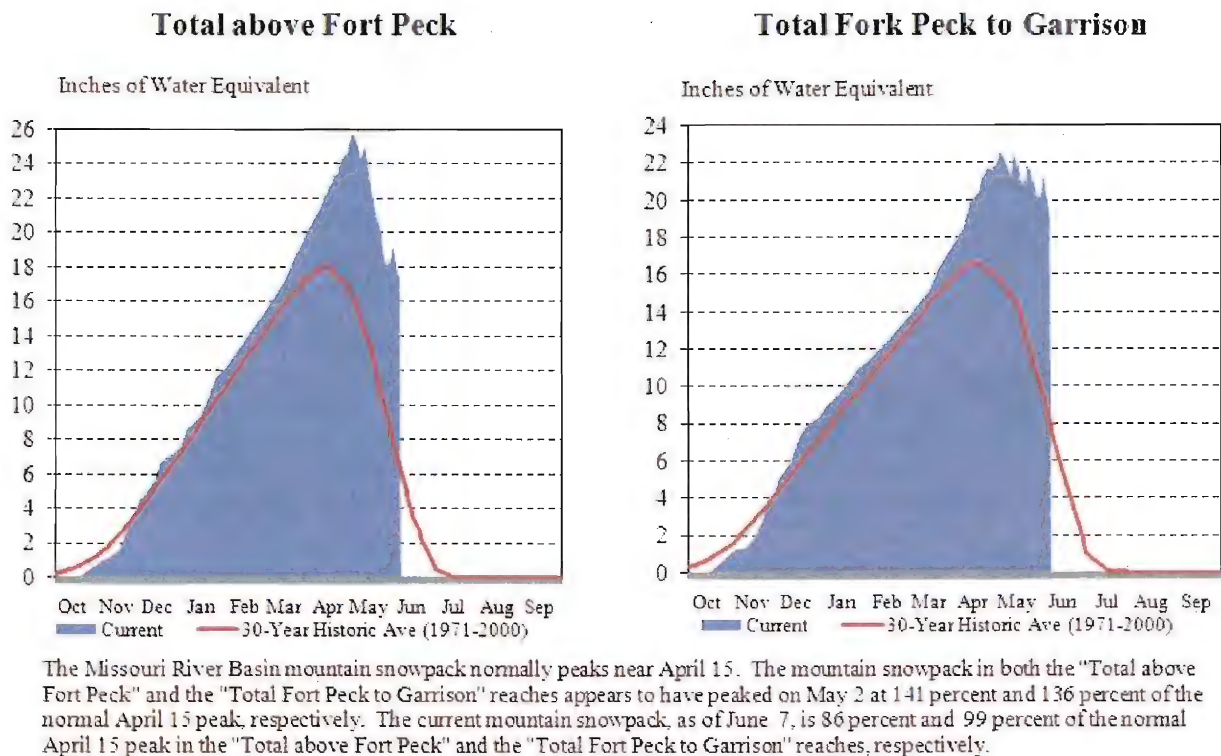


Figure 1. 5-day total QPF ending 0700 Monday, June 13, 2011.





June 7, 2011

Provisional data. Subject to revision.

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 7, 2011.

### Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood.

Figure 3 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 11 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week show a rise to 25.5 feet by next Monday, June 13, and potentially 27 feet by Thursday, June 16.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.



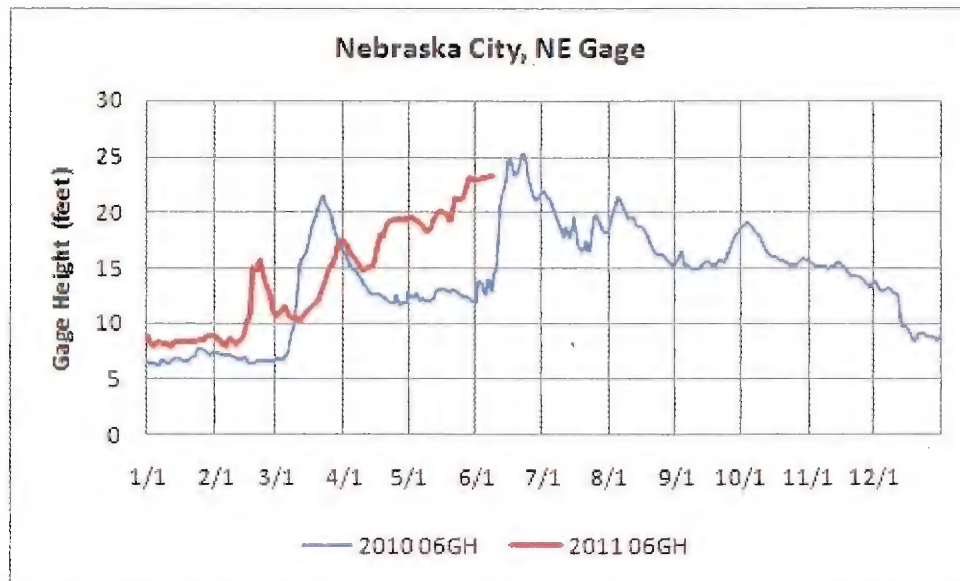


Figure 3. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains fell for the second day in a row in Montana on ground that is likely still saturated from heavy rains the previous 2 to 3 weeks. Figure 4 shows the amount of rain that fell. There are some isolated spots over 2 inches with major areas of rain over half an inch being on the Missouri River basin side of the mountains.

**Montana: Current 1-Day Observed Precipitation**  
Valid at 6/8/2011 1200 UTC- Created 6/8/11 17:40 UTC

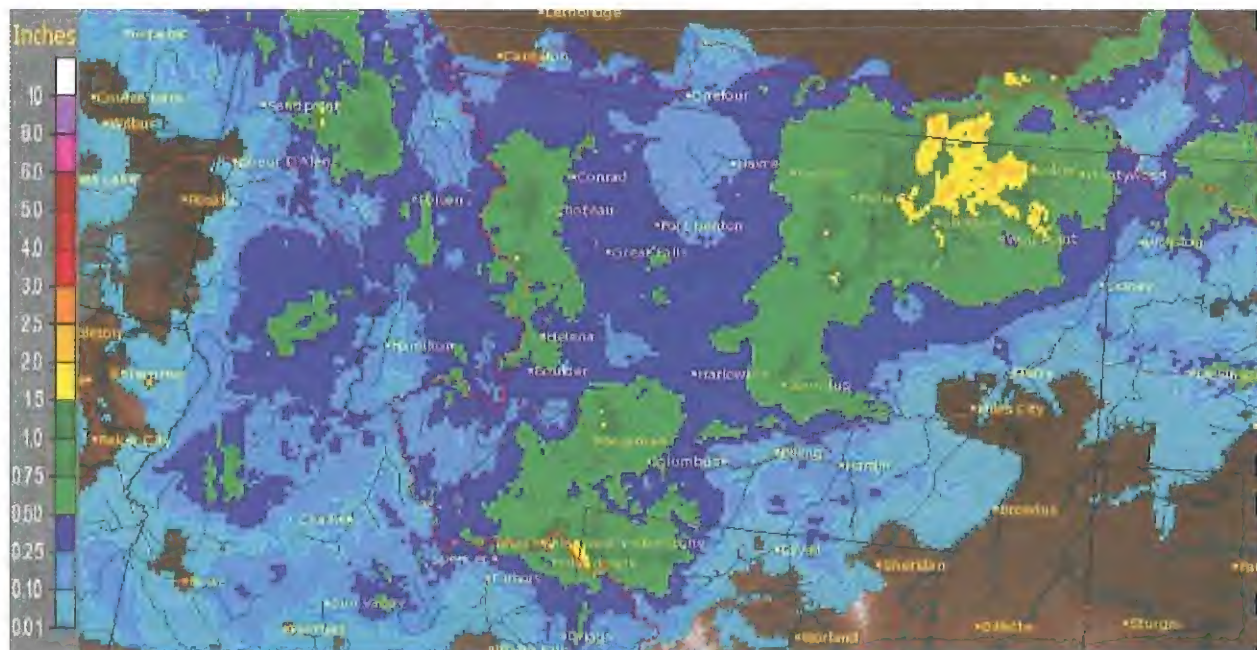


Figure 4. Rainfall on Montana for June 7, 2011.

**From:** [REDACTED] NWD  
**Sent:** Wednesday, June 08, 2011 2:07 PM  
**To:** Blechinger, Erik T NWO; [REDACTED] NWO; [REDACTED] NWK; Johnston, Paul T HQ@ NWO; Williamson, Eileen L NWO; Oldham, Margaret NWO; Wingert, Kevin M NWO; [REDACTED] NWK; Schenk, Kathryn M NWO; [REDACTED] NWK; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWD; [REDACTED]s NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] F NWK; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** FW:Coast Guard - Big Sioux and Missouri River Closure (UNCLASSIFIED)  
**Attachments:** WinZip Compressed Attachments.zip; About WinZip Compressed Attachments.txt

FYI

From: [REDACTED]@uscg.mil [mailto:[REDACTED]@uscg.mil]  
Sent: Tuesday, June 07, 2011 3:33 PM  
To: [REDACTED] NWD  
Cc: [REDACTED] MSSE2  
Subject: FW: Big Sioux and Missouri River Closure

Just wanted to let you know this was being released by our District public affairs. The attached pics are not part of the release, just provided to our District for reference.

Chief, Prevention Department  
U.S. Coast Guard Sector Upper Mississippi River  
1222 Spruce Street, Suite 7-103  
St. Louis, MO 63103

From: [REDACTED] MSSE2  
Sent: Tuesday, June 07, 2011 2:36 PM  
To: [REDACTED] PA3  
Cc: [REDACTED] CAPT; Teschendorf, Steven C; [REDACTED] CDR; [REDACTED] LCDR;  
[REDACTED] LCDR  
Subject: Big Sioux and Missouri River Closure

1

Could you please include this picture with the recent river closure. I think these pictures will help out a lot.

ST LOUIS- In response to a request from the South Dakota Governor and consultation with the State of Iowa, the U.S. Coast Guard has issued a river closure for a portion of the Big Sioux River. This closure is for all vessel traffic between the Missouri River confluence and to Military Rd Bridge in North Sioux City, South Dakota.

The Missouri River is now closed to all vessel traffic between Mile Marker 550, where the state lines meet of Nebraska, Iowa and Missouri to Mile Marker 811, Gaven's Point Dam in Yankton, South Dakota.

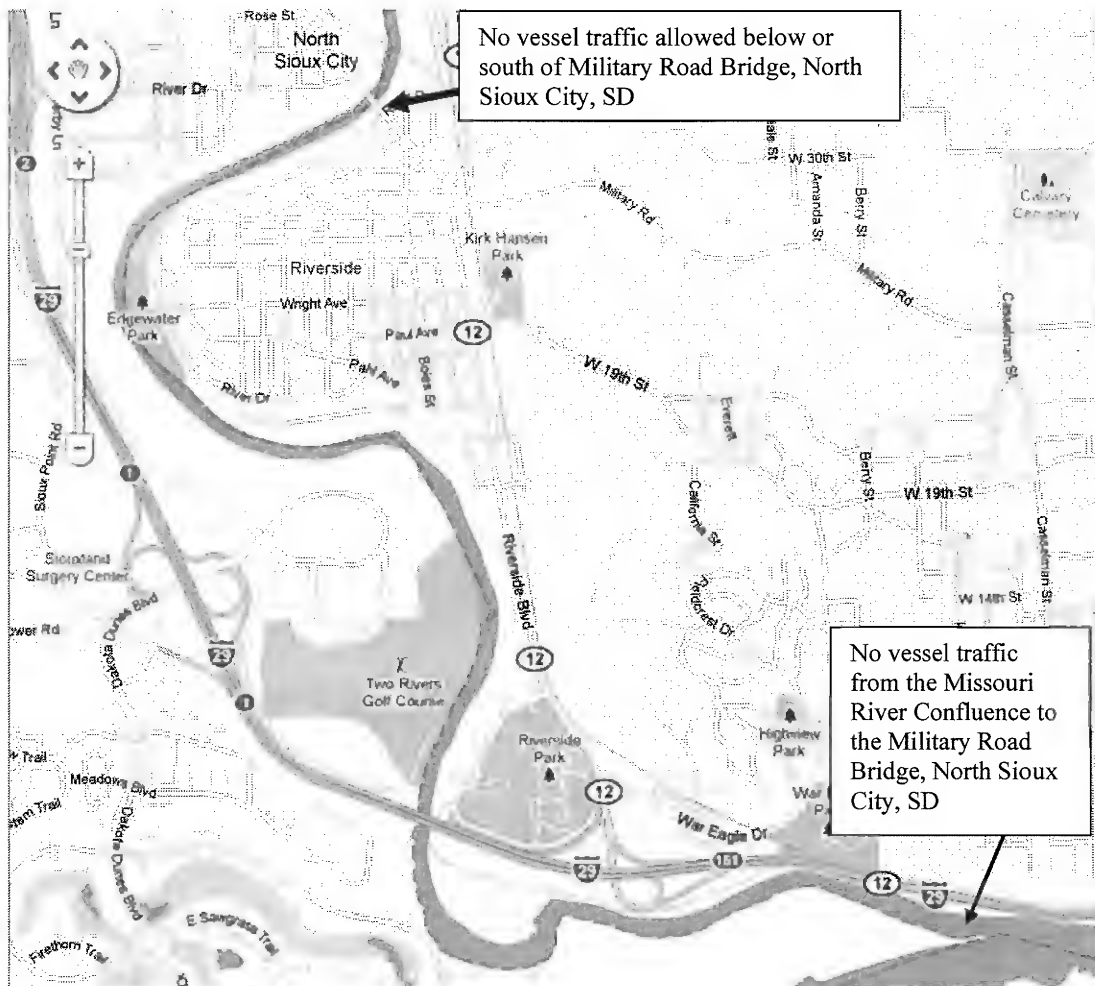
Please monitor Marine Band Channel 16 and 22 for any changes in broadcasts that might occur.

"As a responsible boater if you decide to go boating outside of these areas, it is highly recommended to file a float plan with a reliable source on land and to always wear a personal flotation device (PFD)." said Captain Steve Hudson commanding officer of Sector Upper Mississippi River.

[http://www.uscgboating.org/safety/float\\_planning.aspx](http://www.uscgboating.org/safety/float_planning.aspx)  
USCG Float Plan form, <http://www.floatplancentral.org/download/USCGFloatPlan.pdf>

v/r,  
[REDACTED], MSSE2  
Sector Upper Mississippi river  
1222 Spruce St  
Suite 7.103  
Saint Louis, MO 63103  
W- [REDACTED]  
C- 3 [REDACTED]  
F-3 [REDACTED]  
<http://marineinvestigations.us/>  
<http://www.americaswaterwaywatch.us/>

Classification: UNCLASSIFIED  
Caveats: NONE



Missouri River is closed to all vessel traffic from Gaven's Point SD (Mile Marker 811) south to where Nebraska, Iowa and Missouri meet (Mile Marker 550).



Missouri River is closed to all vessel traffic from where Nebraska, Iowa and Missouri meet (Mile Marker 550) North to Gaven's Point, SD (Mile Marker 811).

[REDACTED] NWO

---

From: [REDACTED] HQ02  
Sent: Wednesday, June 08, 2011 12:42 PM  
To: [REDACTED] NWO; Farhat, Jody S NWD02  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
Subject: RE: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Will do [REDACTED] I have no idea where this is coming from, I received no inquiries regarding this today at the meeting.

-----Original Message-----

From: [REDACTED] NWO  
Sent: Wednesday, June 08, 2011 11:35 AM  
To: Farhat, Jody S NWD02; [REDACTED] HQ02  
Cc: [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
Subject: Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

All,  
I just received a phone call from Representative Rick Berg. He said that he's been hearing comments that the Corps is going to crank up the releases from Garrison, beyond the 150,000 cfs because of the gains we've seen in channel efficiencies at Bismarck. I assured him that was not our current plan and conveyed that if things changed significantly enough that we had to go beyond 150,000 cfs releases, it would require a tremendous amount of coordination, and potentially added protective measures, as that flow would have to be passed through the entire system below Garrison.

He asked that whoever attends the Flood Update meeting in Bismarck tomorrow morning at 0900 hours, address this issue to end this rumor and put folks minds at ease. I told him that I'd pass this on. Mark, I'm assuming you will be attending the meeting tomorrow for Matt, since he's headed back to Omaha? Jody, can you provide the talking points to Mark so he can address this, as requested by the Representative Berg?

Thanks,  
[REDACTED]

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

**NWO**

**From:** Salak, Jennifer NWO  
**Sent:** Wednesday, June 08, 2011 12:33 PM  
**To:** CENWO-EOC NWO; Bertino, John J Jr NWO; [REDACTED] IWD; [REDACTED]  
NWO; 'bruce.sullivan@noaa.gov'; 'bruce.terry@noaa.gov'; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; DLL-CENWO-EOC CMT-ALL; [REDACTED]  
[REDACTED] NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO; [REDACTED] L NWO;  
[REDACTED] R NWO; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T  
HQ@ NWO; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] K NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED]  
[REDACTED] A NWO; [REDACTED] NWO; [REDACTED] NWO;  
'michael.eckert@noaa.gov'; [REDACTED] NWO [REDACTED] NWO [REDACTED]  
M NWO; 'robert.kelly@noaa.gov'; Ruch, Robert J COL NWO; [REDACTED] NWO;  
[REDACTED] S NWO; Tipton, Robert A Col NWD; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; Williamson, Eileen L NWO; [REDACTED] A  
NWD; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] RC; [REDACTED]  
SPK; [REDACTED] SWG; O'Hara, Thomas A NWO; Oldham, Margaret NWO; [REDACTED]  
[REDACTED] SWL; [REDACTED] A NWO  
**Subject:** Riverwatch Daily Update June 8, 2011 (UNCLASSIFIED)  
**Attachments:** Flood\_Fight\_Storyboard\_8JUN.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Missouri River Mainstem Reservoir Bulletin (Updated 8 Jun; 0900 CDT)

Fort Peck (In operation since 1940)  
Midnight Elevation  
\* 2250.9 ft msl  
\* 24-hr Change (+0.4ft)

Daily Avg. Inflow  
\* 101,000 cfs (7 Jun)  
\* 51,000 cfs (6 Jun)

Daily Avg. Release  
\* 48,500 cfs (7 Jun)  
\* 43,000 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 2246 ft msl - 2250 ft msl

Top of Spillway Gates  
\* 2250 ft msl

Planned Scheduled Releases (Subject to Change)  
\* Peak release will be 55,000 cfs by Friday.  
\* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)  
\* 2251.6 msl (1975)

Record Flow (Year)  
\* 35,000 cfs (1975)

Projected Record Flow (Date)  
\* 50,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation  
\* 1853.4 ft msl  
\* 24-hr Change (0.0 ft)

Daily Avg. Inflow  
\* 104,000 (7 Jun)  
\* 97,000 cfs (6 Jun)

Daily Avg. Release  
\* 125,400 cfs (7 Jun)  
\* 118,300 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 1837.5 ft msl - 1850 ft msl  
Exclusive Flood Ctrl Zone (Elevation)  
\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates  
\* 1854 ft msl

River Stage (Bismarck)  
\* 17.01 (0515 CDT 7 Jun)  
\* Flood stage - 16 ft  
\* 17.23 (0715 CDT 6 Jun)

Planned Scheduled Releases (Subject to Change)  
\* Releases will be stepped up to 150,000 cfs by mid June.  
\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)  
\* 1854.8 msl (1975)

Record Flow (Year)  
\* 65,000 cfs (1975)

Projected Record Flow (Date)  
\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)

Midnight Elevation  
\* 1619.1 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 144,000 cfs (7 Jun)  
\* 137,000 cfs (6 Jun)



Daily Avg. Release

- \* 147,000 cfs (7 Jun)
- \* 137,600 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

- \* 1620 ft msl

River Stage (Pierre)

- \* 18.34 (0531 CDT 7 Jun)
- \* Flood stage - 15 ft
- \* 18.07 (0730 CDT 6 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

- \* 1618.7 msl (1995)

Record Flow (Year)

- \* 59,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

- \* 1419.7 ft msl
- \* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

- \* 143,000 cfs (7 Jun)
- \* 129,000 cfs (6 Jun)

Daily Avg. Release

- \* 131,900 cfs (7 Jun)
- \* 128,200 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

- \* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1360.8 ft msl

\* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

\* 143,000 cfs (7 Jun)

\* 133,000 cfs (6 Jun)

Daily Avg. Release

\* 132,700 cfs (7 Jun)

\* 121,600 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1206.8 ft msl

\* 24-hr Change (+0.3 ft)

Daily Avg. Inflow

\* 129,000 cfs (7 Jun)

\* 118,000 cfs (6 Jun)

Daily Avg. Release

\* 125,500 cfs (7 Jun)

\* 115,500 cfs (6 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 8 Jun; 0900 CDT)

24-hr forecast (Glasgow, MT)

Today: Partly sunny, with a high near 62. Southeast wind between 7 and 13 mph.

Tonight: Isolated showers after midnight. Mostly cloudy, with a low around 45. East southeast wind between 7 and 13 mph. Chance of precipitation is 20%.

Thursday: Showers likely, mainly after noon. Mostly cloudy, with a high near 61. East southeast wind between 11 and 20 mph, with gusts as high as 25 mph. Chance of precipitation is 60%.

24-hr forecast (Williston, ND)

Today: Partly sunny, with a high near 63. North wind around 9 mph.

Tonight: Partly cloudy, with a low around 43. East wind between 6 and 8 mph.

Thursday: Scattered showers after 1pm. Mostly cloudy, with a high near 63. East wind between 7 and 15 mph, with gusts as high as 22 mph. Chance of precipitation is 40%.

24-hr forecast (Riverdale, ND)

Today: A 20% chance of showers before 1pm. Mostly cloudy, with a high near 63. North wind between 11 and 15 mph, with gusts as high as 22 mph.

Tonight: Partly cloudy, with a low around 41. East wind between 6 and 8 mph.

Thursday: Isolated showers after 1pm. Partly sunny, with a high near 64. East wind between 6 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 20%.

24-hr forecast (Washburn, ND)

Today: A 20% chance of showers. Mostly cloudy, with a high near 60. North wind between 10 and 15 mph, with gusts as high as 21 mph.

Tonight: Partly cloudy, with a low around 41. East wind between 7 and 9 mph.

Thursday: Isolated showers after 1pm. Partly sunny, with a high near 63. East wind between 7 and 10 mph. Chance of precipitation is 20%.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: A 20% chance of showers. Mostly cloudy, with a high near 61. North wind between 8 and 15 mph, with gusts as high as 22 mph.

Tonight: Partly cloudy, with a low around 42. East wind between 6 and 8 mph.

Thursday: Isolated showers. Mostly cloudy, with a high near 64. East wind between 7 and 16 mph, with gusts as high as 22 mph. Chance of precipitation is 20%.

#### 24-hr forecast (Pierre, SD)

Today: Mostly cloudy, with a high near 64. North northwest wind between 15 and 17 mph.

Tonight: Mostly cloudy, with a low around 46. East northeast wind between 8 and 13 mph.

Thursday: A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 64. East wind between 10 and 16 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: Mostly cloudy, with a high near 65. North northwest wind between 15 and 17 mph.

Tonight: Mostly cloudy, with a low around 47. Northeast wind between 8 and 13 mph.

Thursday: A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 64. East wind between 10 and 16 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Mostly cloudy, with a high near 67. North northwest wind between 15 and 17 mph.

Tonight: Mostly cloudy, with a low around 47. Northeast wind between 9 and 13 mph.

Thursday: A 50% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 65. East wind between 10 and 16 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Partly sunny, with a high near 68. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 28 mph.

Tonight: Partly cloudy, with a low around 47. East northeast wind between 9 and 14 mph.

Thursday: A chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 66. East wind between 10 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 40%.

#### 24-hr forecast (Yankton, SD)

Today: Mostly sunny, with a high near 74. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 29 mph.

Tonight: A slight chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 49. North northeast wind between 7 and 14 mph. Chance of precipitation is 20%.

Thursday: A chance of showers and thunderstorms. Mostly cloudy, with a high near 67. East northeast wind between 8 and 15 mph. Chance of precipitation is 50%.

#### 24-hr forecast (Sioux City, IA)

Today: Mostly sunny, with a high near 80. North northwest wind around 17 mph, with gusts as high as 26 mph.

Tonight: A chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 53. North northeast wind between 7 and 13 mph. Chance of precipitation is 30%.

Thursday: A chance of showers and thunderstorms. Mostly cloudy, with a high near 70. East northeast wind between 7 and 15 mph. Chance of precipitation is 50%.

#### 24-hr forecast (Omaha, NE)

Today: A 10% chance of showers and thunderstorms after 5pm. Mostly sunny, with a high near 86. North northwest wind between 9 and 13 mph.

Tonight: A 50% chance of showers and thunderstorms, mainly after 7pm. Mostly cloudy, with a low around 59. North northeast wind around 13 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Thursday: A 50% chance of showers and thunderstorms. Mostly cloudy, with a high near 73. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>

#### Missouri River Flooding (Logistics) (Updated 8 Jun; 0900 CDT) Personnel Deployed

5 (Glasgow, MT)  
5 (Lander, WY)  
11 (Bismarck, ND)  
2 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Minot, ND)  
4 (Pierre, SD)  
1 (Kansas City, MO)  
4 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
2 (Missouri River Survey)  
1 (Decatur, NE)  
3 (Offutt, NE)

8 (North Platte, NE)  
5 (Roundup, MT)  
1 (Dakota City, SD)

Equipment Deployed  
HESCO

Issued: 35,370 LF  
On Hand: 30,280 LF  
Projected Outstanding Requirements: 21,720 LF Currently working on: 12,000 LF due in from Louisiana

Poly Rolls

Issued: 2201 rolls  
On Hand: 1366 rolls  
Projected Outstanding Requirements: 1500 rolls 1050 rolls due in 7 June, 700 rolls due in 7 June

Pumps

Issued: 19 pumps  
On Hand: 13 (4-12"; 1-16"; 8-16")  
Projected Outstanding Requirements: 7 pumps

RDFW

Received 2 crates

Additional Supplies due in:

Sandbags: 500,000 due in  
Poly Roll: 1,050 due in 7/8 Jun  
Pumps: 1 with hoses from TN due in 9 Jun

Sandbags

Issued: 13.8 M  
On Hand: 4,782,500  
Projected Outstanding Requirements: 6.5 M Currently working on: Contracting has 500K due in from Vendor today, 650K due in from NWS

Source of information: CMT Brief (7 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 8 Jun; 0900 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2250.9 ft msl</li> <li>24-hr Change (+0.4ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>101,000 cfs (7 Jun)</li> <li>51,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>48,500 cfs (7 Jun)</li> <li>43,000 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Peak release will be 55,000 cfs by Friday.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>50,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.4 ft msl</li> <li>24-hr Change (0.0 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>104,000 cfs (7 Jun)</li> <li>97,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>125,400 cfs (7 Jun)</li> <li>118,300 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.01 (0515 CDT 7 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.23 (0715 CDT 6 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1619.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>144,000 cfs (7 Jun)</li> <li>137,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>147,000 cfs (7 Jun)</li> <li>137,600 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.34 (0531 CDT 7 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.07 (0730 CDT 6 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.7 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>143,000 cfs (7 Jun)</li> <li>129,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>131,900 cfs (7 Jun)</li> <li>128,200 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1360.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>143,000 cfs (7 Jun)</li> <li>133,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>132,700 cfs (7 Jun)</li> <li>121,600 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1206.8 ft msl</li> <li>24-hr Change (+0.3 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>129,000 cfs (7 Jun)</li> <li>118,000 cfs (6 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>125,500 cfs (7 Jun)</li> <li>115,500 cfs (6 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 8 Jun; 0900 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  <b>Today:</b> Partly sunny, with a high near 62. Southeast wind between 7 and 13 mph.  <b>Tonight:</b> Isolated showers after midnight. Mostly cloudy, with a low around 45. East southeast wind between 7 and 13 mph. Chance of precipitation is 20%.  <b>Thursday:</b> Showers likely, mainly after noon. Mostly cloudy, with a high near 61. East southeast wind between 11 and 20 mph, with gusts as high as 25 mph. Chance of precipitation is 60%.  <b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> Partly sunny, with a high near 63. North wind around 9 mph.  <b>Tonight:</b> Partly cloudy, with a low around 43. East wind between 6 and 8 mph.  <b>Thursday:</b> Scattered showers after 1pm. Mostly cloudy, with a high near 63. East wind between 7 and 15 mph, with gusts as high as 22 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b>  <b>Today:</b> A 20% chance of showers before 1pm. Mostly cloudy, with a high near 63. North wind between 11 and 15 mph, with gusts as high as 22 mph.  <b>Tonight:</b> Partly cloudy, with a low around 41. East wind between 6 and 8 mph.  <b>Thursday:</b> Isolated showers after 1pm. Partly sunny, with a high near 64. East wind between 6 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 20%.  <b>24-hr forecast (Washburn, ND)</b>  <b>Today:</b> A 20% chance of showers. Mostly cloudy, with a high near 60. North wind between 10 and 15 mph, with gusts as high as 21 mph.  <b>Tonight:</b> Partly cloudy, with a low around 41. East wind between 7 and 9 mph.  <b>Thursday:</b> Isolated showers after 1pm. Partly sunny, with a high near 63. East wind between 7 and 10 mph. Chance of precipitation is 20%.	<b>24-hr forecast (Pierre, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 64. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 46. East northeast wind between 8 and 13 mph.  <b>Thursday:</b> A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 64. East wind between 10 and 16 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 65. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. Northeast wind between 8 and 13 mph.  <b>Thursday:</b> A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 64. East wind between 10 and 16 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 67. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. Northeast wind between 9 and 13 mph.  <b>Thursday:</b> A 50% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 65. East wind between 10 and 16 mph.  <b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with a high near 80. North northwest wind around 17 mph, with gusts as high as 26 mph.  <b>Tonight:</b> A chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 53. North northeast wind between 7 and 13 mph. Chance of precipitation is 30%.  <b>Thursday:</b> A chance of showers and thunderstorms. Mostly cloudy, with a high near 70. East northeast wind between 7 and 15 mph. Chance of precipitation is 50%.	<b>24-hr forecast (Chamberlain, SD)</b>  <b>Today:</b> Partly sunny, with a high near 68. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 28 mph.  <b>Tonight:</b> Partly cloudy, with a low around 47. East northeast wind between 9 and 14 mph.  <b>Thursday:</b> A chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 66. East wind between 10 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 40%.  <b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with a high near 80. North northwest wind around 17 mph, with gusts as high as 26 mph.  <b>Tonight:</b> A chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 53. North northeast wind between 7 and 13 mph. Chance of precipitation is 30%.  <b>Thursday:</b> A chance of showers and thunderstorms. Mostly cloudy, with a high near 70. East northeast wind between 7 and 15 mph. Chance of precipitation is 50%.	<b>24-hr forecast (Yankton, SD)</b>  <b>Today:</b> Mostly sunny, with a high near 74. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 29 mph.  <b>Tonight:</b> A slight chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 49. North northeast wind between 7 and 14 mph. Chance of precipitation is 20%.  <b>Thursday:</b> A chance of showers and thunderstorms. Mostly cloudy, with a high near 67. East northeast wind between 8 and 15 mph. Chance of precipitation is 50%.





## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 8 Jun; 0900 CDT)

Fort Peck	Garrison	Osage	Big Bend	Fort Randall	Gavins Point
	<p><b>24-hr forecast</b> <b>(Bismarck/Mandan, ND)</b></p> <p><b>Today:</b> A 20% chance of showers. Mostly cloudy, with a high near 61. North wind between 8 and 15 mph, with gusts as high as 22 mph.</p> <p><b>Tonight:</b> Partly cloudy, with a low around 42. East wind between 6 and 8 mph.</p> <p><b>Thursday:</b> Isolated showers. Mostly cloudy, with a high near 64. East wind between 7 and 16 mph, with gusts as high as 22 mph. Chance of precipitation is 20%.</p>				<p><b>24-hr forecast (Omaha, NE)</b></p> <p><b>Today:</b> A 10% chance of showers and thunderstorms after 5pm. Mostly sunny, with a high near 86. North northwest wind between 9 and 13 mph.</p> <p><b>Tonight:</b> A 50% chance of showers and thunderstorms, mainly after 7pm. Mostly cloudy, with a low around 59. North northeast wind around 13 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.</p> <p><b>Thursday:</b> A 50% chance of showers and thunderstorms. Mostly cloudy, with a high near 73. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.</p>

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 8 Jun; 0900 CDT)

### Personnel Deployed

5 (Glasgow, MT)  
5 (Lander, WY)  
11 (Bismarck, ND)  
2 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Minot, ND)

4 (Pierre, SD)  
1 (Kansas City, MO)  
4 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)

2 (Missouri River Survey)  
1 (Decatur, NE)  
3 (Offutt, NE)  
8 (North Platte, NE)  
5 (Roundup, MT)  
1 (Dakota City, SD)

### Equipment Deployed

#### HESCO

Issued: 35,370 LF  
On Hand: 30,280 LF  
Projected Outstanding Requirements: 21,720 LF  
Currently working on: 12,000 LF due in from Louisiana

#### Poly Rolls

Issued: 2201 rolls  
On Hand: 1366 rolls  
Projected Outstanding Requirements: 1500 rolls  
1050 rolls due in 7 June, 700 rolls due in 7 June

#### Pumps

Issued: 19 pumps  
On Hand: 13 (4-12"; 1-16"; 8-16")  
Projected Outstanding Requirements: 7 pumps

#### RDFW

Received 2 crates

#### Additional Supplies due in:

Sandbags: 500,000 due in  
Poly Roll: 1,050 due in 7/8 Jun  
Pumps: 1 with hoses from TN due in 9 Jun

#### Sandbags

Issued: 13.8 M  
On Hand: 4,782,500  
Projected Outstanding Requirements: 6.5 M  
Currently working on: Contracting has 500K due in from Vendor today,  
650K due in from NWS

**[REDACTED] NWO**

---

**From:** Wingert, Kevin M NWO  
**Sent:** Wednesday, June 08, 2011 12:28 PM  
**To:** **[REDACTED] NWO**  
**Cc:** Oldham, Margaret NWO; Farhat, Jody S NWD02  
**Subject:** (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED]**  
It's my understanding that you're handling the Twitter/Facebook duties today? If so, can we get out a post reiterating the current release schedule out of the mainstems and that the highest level of release currently anticipated remains 150,000 cfs?

The reason I ask is people in the field are taking phone calls about wild speculation regarding releases. In North Dakota, in particular, one of our program managers was called by Rep. Berg and asked if the Corps was going above 150,000 cfs because he'd heard through constituents that the river was performing well under its rating curve through Bismarck (which it is, by roughly 2 feet) and that the Corps planned to take advantage of that fact to evacuate more water (which we are not).

I talked with Jody Farhat and she is incorporating information to reiterate the release schedule in her remarks tonight and dispel rumors. She'd heard similar rumblings from people down south that the Corps was going to ramp up to 180,000 cfs (which, again, we're not).

So between her talking points tonight and a Twitter/Facebook post, that may go a long way to dispelling bad info and putting some people's minds at ease.

Please route through whomever you need to for appropriate clearance. Thanks.

Very Respectfully,

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 12:07 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02  
**Subject:** RE: Release Schedule (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
On our forecasts from late May, we showed gradually working the releases up at Oahe/Big Bend and not reaching 150 kcfs until mid-June. The way the runoff came in we had to go up to the 150 kcfs releases from Oahe/Bend quicker and reached 150 kcfs yesterday. We are still trying to gradually increase releases at Garrison (reach 150 kcfs on 17 June) to allow Oahe to drop slightly over the next several days.

Much like we did in holding releases at 85 kcfs for a few extra days at Garrison and Oahe, we've tried to stick to the schedule at Gavins Point to give preparation time to the downstream areas. The result is that we've had to put some of that additional water in Fort Randall.  
Mike

-----Original Message-----  
**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 9:14 AM  
**To:** [REDACTED] NWO  
**Cc:** Swenson, Michael A NWD02; Knofczynski, Joel D NWD02  
**Subject:** RE: Release Schedule (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] and/or [REDACTED]

Can you tell Tom the thought process behind the release schedule?

Jody

-----Original Message-----  
**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 6:50 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Release Schedule (UNCLASSIFIED)


Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Why are we coming up faster (on releases) at Garrison and Oahe, than Ft Randall and Gavins and putting water in Lake Francis Case? - I think I know the answer to that one so let me ask

you a different question - why aren't we coming up faster on our FR and GP releases? Do we have to take LFC up over 1362?

Thanks,

  
Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 11:39 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] LRC  
**Subject:** RE: Questions on Amtrak Rail Disruption due to Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I concur with Jody. The reporter should contact Amtrak and/or the railroads

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 08, 2011 11:22 AM  
**To:** [REDACTED] LRC; [REDACTED] NWO  
**Subject:** RE: Questions on Amtrak Rail Disruption due to Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I have no information on Amtrak. Suggest the reported deal directly with them.

-----Original Message-----

**From:** [REDACTED] LRC  
**Sent:** Wednesday, June 08, 2011 11:20 AM  
**To:** [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Questions on Amtrak Rail Disruption due to Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Reporter out of Hutchinson, Kansas wants to know about Amtrak rail closures in area. He said that closures will be until at least the 14. Below is what I pulled from an article. He mentioned a crest of 32 feet and diking being over the rails, but I do not know what region this pertains to. His deadline is noon, if you could just answer the general questions below for me. Thanks so much.

Amtrak: Amtrak announced that its California Zephyr service will be temporarily suspended between Denver and Chicago starting Friday. Amtrak officials said the suspension is due to Missouri River flooding projections and anticipated Burlington Northern Santa Fe Railway track closings in the Omaha area. The disruption will continue at least through June 14. Passengers should call 800-USA-RAIL for more information.

How do we work with Amtrak to make these closure decisions, or do they make them on their own based on potential inundation over the rails ( I know that we cannot speak on behalf of Amtrak)?

Do we know which releases are affecting these closures?

Could there be any improvement over the next couple of days, or through the 14, in which the railways could reopen or not have to close?

I will give him the links to our daily river watch and inundation maps.

Sarah D. Gross  
Public Affairs Specialist  
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<http://www.flickr.com/photos/usacechicago>  
Great Lakes and Mississippi River Interbasin Study (GLMRIS):  
<http://glmris.anl.gov>  
<http://facebook.com/glmris>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 11:35 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] HQ02  
**Cc:** [REDACTED] NWO; [REDACTED] SWF; [REDACTED] NWO  
**Subject:** Tomorrow's Flood Update/Press Conference in Bismarck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

All,  
I just received a phone call from Representative Rick Berg. He said that he's been hearing comments that the Corps is going to crank up the releases from Garrison, beyond the 150,000 cfs because of the gains we've seen in channel efficiencies at Bismarck. I assured him that was not our current plan and conveyed that if things changed significantly enough that we had to go beyond 150,000 cfs releases, it would require a tremendous amount of coordination, and potentially added protective measures, as that flow would have to be passed through the entire system below Garrison.

He asked that whoever attends the Flood Update meeting in Bismarck tomorrow morning at 0900 hours, address this issue to end this rumor and put folks minds at ease. I told him that I'd pass this on. Mark, I'm assuming you will be attending the meeting tomorrow for Matt, since he's headed back to Omaha? Jody, can you provide the talking points to Mark so he can address this, as requested by the Representative Berg?

Thanks,  
[REDACTED]

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO



**NWO**

**From:** Gross, Sarah LRC  
**Sent:** Wednesday, June 08, 2011 11:20 AM  
**To:** **NWO**  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Questions on Amtrak Rail Disruption due to Flooding (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Reporter out of Hutchinson, Kansas wants to know about Amtrak rail closures in area. He said that closures will be until at least the 14. Below is what I pulled from an article. He mentioned a crest of 32 feet and diking being over the rails, but I do not know what region this pertains to. His deadline is noon, if you could just answer the general questions below for me. Thanks so much.

Amtrak: Amtrak announced that its California Zephyr service will be temporarily suspended between Denver and Chicago starting Friday. Amtrak officials said the suspension is due to Missouri River flooding projections and anticipated Burlington Northern Santa Fe Railway track closings in the Omaha area. The disruption will continue at least through June 14. Passengers should call 800-USA-RAIL for more information.

How do we work with Amtrak to make these closure decisions, or do they make them on their own based on potential inundation over the rails ( I know that we cannot speak on behalf of Amtrak)?

Do we know which releases are affecting these closures?

Could there be any improvement over the next couple of days, or through the 14, in which the railways could reopen or not have to close?

I will give him the links to our daily river watch and inundation maps.

Sarah D. Gross  
Public Affairs Specialist  
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<http://www.flickr.com/photos/usacechicago>  
Great Lakes and Mississippi River Interbasin Study (GLMRIS):  
<http://glmr.is.anl.gov>  
<http://facebook.com/glmris>

Classification: UNCLASSIFIED  
Caveats: NONE

**Burke, Linda F NWO**

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**From:** Williamson, Eileen L NWO  
**Sent:** Wednesday, June 08, 2011 11:07 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** Riverwatch (UNCLASSIFIED)  
**Attachments:** Flood\_Fight\_Storyboard\_8JUN.docx

Classification: UNCLASSIFIED  
Caveats: NONE

We have not yet released the Riverwatch document.

Jennifer Salak ran it by [REDACTED] and the numbers are accurate.

Here is my question / concern because of double the inflows at Fort Peck

1. We did a press release yesterday saying that release would increase to 55,000 cfs
2. We can address how the release will affect releases at the other dams based on yesterday's (with emphasis that forecasts are subject to change)
3. We need to acknowledge the inflows and how we are watching them don't need detail just something.

And, we are getting asked for the document so need it up as soon as we can.

Thanks!

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Eileen L. Williamson  
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Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 8 Jun; 0900 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>2250.9 ft msl</li> <li>24-hr Change (+0.4ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>101,000 cfs (7 Jun)</li> <li>51,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>48,500 cfs (7 Jun)</li> <li>43,000 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Peak release will be 55,000 cfs by no later than mid June.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <p><b>Record Flow (Year)</b></p> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>50,000 cfs (Mid June)</li> </ul>	<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>1853.4 ft msl</li> <li>24-hr Change (0.0 ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>104,000 cfs (7 Jun)</li> <li>97,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>125,400 cfs (7 Jun)</li> <li>118,300 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <p><b>River Stage (Bismarck)</b></p> <ul style="list-style-type: none"> <li>17.01 (0515 CDT 7 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.23 (0715 CDT 6 Jun)</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <p><b>Record Flow (Year)</b></p> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>1619.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>144,000 cfs (7 Jun)</li> <li>137,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>147,000 cfs (7 Jun)</li> <li>137,600 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <p><b>River Stage (Pierre)</b></p> <ul style="list-style-type: none"> <li>18.34 (0531 CDT 7 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.07 (0730 CDT 6 Jun)</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <p><b>Record Flow (Year)</b></p> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>1419.7 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>143,000 cfs (7 Jun)</li> <li>129,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>131,900 cfs (7 Jun)</li> <li>128,200 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <p><b>Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>1360.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>143,000 cfs (7 Jun)</li> <li>133,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>132,700 cfs (7 Jun)</li> <li>121,600 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <p><b>Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<p><b>Midnight Elevation</b></p> <ul style="list-style-type: none"> <li>1206.8 ft msl</li> <li>24-hr Change (+0.3 ft)</li> </ul> <p><b>Daily Avg. Inflow</b></p> <ul style="list-style-type: none"> <li>129,000 cfs (7 Jun)</li> <li>118,000 cfs (6 Jun)</li> </ul> <p><b>Daily Avg. Release</b></p> <ul style="list-style-type: none"> <li>125,500 cfs (7 Jun)</li> <li>115,500 cfs (6 Jun)</li> </ul> <p><b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <p><b>Exclusive Flood Ctrl Zone (Elevation)</b></p> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <p><b>Top of Spillway Gates</b></p> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <p><b>Planned Scheduled Releases (Subject to Change)</b></p> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <p><b>Record Pool Elevation (Year)</b></p> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <p><b>Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <p><b>Projected Record Flow (Date)</b></p> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 8 Jun; 0900 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  <b>Today:</b> Partly sunny, with a high near 62. Southeast wind between 7 and 13 mph.  <b>Tonight:</b> Isolated showers after midnight. Mostly cloudy, with a low around 45. East southeast wind between 7 and 13 mph. Chance of precipitation is 20%.  <b>Thursday:</b> Showers likely, mainly after noon. Mostly cloudy, with a high near 61. East southeast wind between 11 and 20 mph, with gusts as high as 25 mph. Chance of precipitation is 60%.  <b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> Partly sunny, with a high near 63. North wind around 9 mph.  <b>Tonight:</b> Partly cloudy, with a low around 43. East wind between 6 and 8 mph.  <b>Thursday:</b> Scattered showers after 1pm. Mostly cloudy, with a high near 63. East wind between 7 and 15 mph, with gusts as high as 22 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b>  <b>Today:</b> A 20% chance of showers before 1pm. Mostly cloudy, with a high near 63. North wind between 11 and 15 mph, with gusts as high as 22 mph.  <b>Tonight:</b> Partly cloudy, with a low around 41. East wind between 6 and 8 mph.  <b>Thursday:</b> Isolated showers after 1pm. Partly sunny, with a high near 64. East wind between 6 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 20%.  <b>24-hr forecast (Washburn, ND)</b>  <b>Today:</b> A 20% chance of showers. Mostly cloudy, with a high near 60. North wind between 10 and 15 mph, with gusts as high as 21 mph.  <b>Tonight:</b> Partly cloudy, with a low around 41. East wind between 7 and 9 mph.  <b>Thursday:</b> Isolated showers after 1pm. Partly sunny, with a high near 63. East wind between 7 and 10 mph. Chance of precipitation is 20%.	<b>24-hr forecast (Pierre, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 64. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 46. East northeast wind between 8 and 13 mph.  <b>Thursday:</b> A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 64. East wind between 10 and 16 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 65. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. Northeast wind between 8 and 13 mph.  <b>Thursday:</b> A 40% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 65. East wind between 10 and 16 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  <b>Today:</b> Mostly cloudy, with a high near 67. North northwest wind between 15 and 17 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. Northeast wind between 9 and 13 mph.  <b>Thursday:</b> A 50% chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 65. East wind between 10 and 16 mph.	<b>24-hr forecast (Chamberlain, SD)</b>  <b>Today:</b> Partly sunny, with a high near 68. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 28 mph.  <b>Tonight:</b> Partly cloudy, with a low around 47. East northeast wind between 9 and 14 mph.  <b>Thursday:</b> A chance of showers and thunderstorms, mainly after 1pm. Mostly cloudy, with a high near 66. East wind between 10 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b>  <b>Today:</b> Mostly sunny, with a high near 74. Breezy, with a north northwest wind between 17 and 20 mph, with gusts as high as 29 mph.  <b>Tonight:</b> A slight chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 49. North northeast wind between 7 and 14 mph. Chance of precipitation is 20%.  <b>Thursday:</b> A chance of showers and thunderstorms. Mostly cloudy, with a high near 67. East northeast wind between 8 and 15 mph. Chance of precipitation is 50%.  <b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with a high near 80. North northwest wind around 17 mph, with gusts as high as 26 mph.  <b>Tonight:</b> A chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 53. North northeast wind between 7 and 13 mph. Chance of precipitation is 30%.  <b>Thursday:</b> A chance of showers and thunderstorms. Mostly cloudy, with a high near 70. East northeast wind between 7 and 15 mph. Chance of precipitation is 50%.

Source of information: <http://www.weather.gov>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 7 Jun; 0735 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
	<p><b>24-hr forecast (Bismarck/Mandan, ND)</b></p> <p><b>Today:</b> A 20% chance of showers. Mostly cloudy, with a high near 61. North wind between 8 and 15 mph, with gusts as high as 22 mph.</p> <p><b>Tonight:</b> Partly cloudy, with a low around 42. East wind between 6 and 8 mph.</p> <p><b>Thursday:</b> Isolated showers. Mostly cloudy, with a high near 64. East wind between 7 and 16 mph, with gusts as high as 22 mph. Chance of precipitation is 20%.</p>				<p><b>24-hr forecast (Omaha, NE)</b></p> <p><b>Today:</b> A 10% chance of showers and thunderstorms after 5pm. Mostly sunny, with a high near 86. North northwest wind between 9 and 13 mph.</p> <p><b>Tonight:</b> A 50% chance of showers and thunderstorms, mainly after 7pm. Mostly cloudy, with a low around 59. North northeast wind around 13 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.</p> <p><b>Thursday:</b> A 50% chance of showers and thunderstorms. Mostly cloudy, with a high near 73. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.</p>

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 8 Jun; 0900 CDT)

Personnel Deployed	
5 (Glasgow, MT) 5 (Lander, WY) 11 (Bismarck, ND) 2 (Fort Yates, ND) 5 (Williston, ND) 1 (Minot, ND)	4 (Pierre, SD) 1 (Kansas City, MO) 4 (Sioux City, IA) 6 (Dakota Dunes, SD) 6 (S. Sioux City, NE)
2 (Missouri River Survey) 1 (Decatur, NE) 3 (Offutt, NE) 8 (North Platte, NE) 5 (Roundup, MT) 1 (Dakota City, SD)	

Equipment Deployed	
<b>HESCO</b> Issued: 35,370 LF On Hand: 30,280 LF Projected Outstanding Requirements: 21,720 LF Currently working on: 12,000 LF due in from Louisiana	<b>Sandbags</b> Issued: 13.8 M On Hand: 4,782,500 Projected Outstanding Requirements: 6.5 M Currently working on: Contracting has 500K due in from Vendor today, 650K due in from NWS
<b>Poly Rolls</b> Issued: 2201 rolls On Hand: 1366 rolls Projected Outstanding Requirements: 1500 rolls 1050 rolls due in 7 June, 700 rolls due in 7 June	
<b>Pumps</b> Issued: 19 pumps On Hand: 13 (4-12"; 1-16"; 8-16") Projected Outstanding Requirements: 7 pumps	
<b>RDFW</b> Received 2 crates	
<b>Additional Supplies due in:</b>  Sandbags: 500,000 due in Poly Roll: 1,050 due in 7/8 Jun Pumps: 1 with hoses from TN due in 9 Jun	

**NWO**

**From:** Williamson, Eileen L NWO  
**Sent:** Wednesday, June 08, 2011 10:32 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

How's this?

Rainfall in the Fort Peck area and over much of Montana over the last 24-hours ranged from a half inch to more than two and a half inches resulting in inflows into Fort Peck doubling from the previous day. Release from Fort Peck are being monitored with the inflows and releases from the remaining five mainstem dams is not projected to change.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 08, 2011 9:58 AM  
To: Williamson, Eileen L NWO; Farmer, Monique L NWO  
Subject: RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Eileen - The increase in Fort Peck releases isn't planned until Friday, and now we are anticipating that the new number will be 60,000 based on the huge inflow seen today. My recommendation is leave in the statement about the inflows, but take off the statement about the releases since it's likely to change by this afternoon.

Jody

-----Original Message-----

From: Williamson, Eileen L NWO  
Sent: Wednesday, June 08, 2011 9:44 AM  
To: Farhat, Jody S NWD02; Farmer, Monique L NWO  
Subject: FW: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

TP on today's Riverwatch.

I want to put the following statement with the Riverwatch when it goes out today, want to make sure it is accurate.

Rainfall in the Fort Peck area and over much of Montana over the last 24-hours ranged from a half inch to more than two and a half inches resulting in inflows into Fort Peck doubling from the previous day. Releases from Fort Peck were increased to 55,000 cubic feet per second on Tuesday. The releases from the remaining five mainstem dams is not projected to change.

-----Original Message-----



From: [REDACTED] NWD02  
Sent: Wednesday, June 08, 2011 8:58 AM  
To: Williamson, Eileen L NWO  
Subject: RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Yes. Remember, it rained directly on the reservoir.

-----Original Message-----

From: Williamson, Eileen L NWO  
Sent: Wednesday, June 08, 2011 8:56 AM  
To: [REDACTED] NWD02  
Subject: RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Was the inflow REALLY twice yesterday than the day before?!

-----Original Message-----

From: [REDACTED] NWD02  
Sent: Wednesday, June 08, 2011 8:47 AM  
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR  
Cc: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; Mcallister, Roy F. Jr NWO  
Subject: RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/7 Pool Elev: 2250.9 ft-msl

24-hr change: 0.4'

6/7 Ave Inflow: 101,000 cfs

6/7 Ave Release: 48,500 cfs

6/8 Scheduled Release: 50,000 cfs

Garrison Dam (ND)

6/7 Pool Elev: 1853.4 ft-msl

24-hr change: 0.0

6/7 Ave Inflow: 104,000 cfs

6/7 Ave Release: 125,400 cfs

6/8 Scheduled Release: 130,000 cfs

Oahe Dam (SD)

6/7 Pool Elev: 1619.1 ft-msl

24-hr change: -0.1'

6/7 Ave Inflow: 144,000 cfs

6/7 Ave Release: 147,000 cfs

6/8 Scheduled Release: 150,000 cfs

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24-hr change: 0.4'

6/7 Ave Inflow: 143,000 cfs

6/7 Ave Release: 131,900 cfs

6/8 Scheduled Release: 150,000 cfs

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6/7 Pool Elev: 1206.8 ft-msl

24-hr change: 0.3'

6/7 Ave Inflow: 129,000 cfs

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6/8 Scheduled Release: 140,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

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**From:** [REDACTED] NWD  
**Sent:** Wednesday, June 08, 2011 10:15 AM  
**To:** [REDACTED] NWD; Blechinger, Erik T NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: 2011 Release Schedule Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Thanks [REDACTED]. These look good. I assume you are compiling a Q/A book. Would be good to have bullet version for these as well.

I talked with M1 this morning about the press conf. He is OK with us - me and Cols Ruch and Hofmann doing one w/o him next week if it makes sense.

So, we should move out on planning one for next week; the signature event ostensibly being the record release of 150 kcfs from Gavins. If we do one, I think one or two poster board graphics would be good to think about - maybe one on water and one on flood fight efforts.

Can discuss further tomorrow. I'm sure you guys are all over it.

[REDACTED]  
-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Tuesday, June 07, 2011 6:28 PM  
**To:** Blechinger, Erik T NWO  
**Cc:** [REDACTED] NWD; Farhat, Jody S NWD02  
**Subject:** 2011 Release Schedule Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Erik,

Here are the TPs you already reviewed on this subject, with a few minor tweaks by Jody. I figured I would cc [REDACTED] before we go final, final with this one since he had some good inputs for the Master Manual TPs. I will get those incorporated & have it republished for use tomorrow.

[REDACTED]  
[REDACTED]  
Attorney/Advisor, U.S. Army Corps of Engineers Office of Counsel, Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Attachment Classification: UNCLASSIFIED  
Attachment Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: FOUO

**NWO**

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**From:** Gross, Sarah LRC  
**Sent:** Wednesday, June 08, 2011 9:58 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Request for Interview (UNCLASSIFIED)

**Importance:** High

Classification: UNCLASSIFIED

Caveats: NONE

Jody, Jason Meakaer with Successful Farming Magazine out of northern Iowa will be in the Omaha area this Friday and plans to come into the office for a videotaped interview. He is free all day. Would you be able to take this request; if so, what timeframe, would you like for me to tell him to come in?

This video will be posted on Agriculture.com, and he wants to cover the concept of the different gate releases, current status of overall situation and the week's outlook and the potential impact on Missouri Valley farmers (or how we come to the conclusion to inundate certain areas).

Sarah D. Gross  
Public Affairs Specialist  
U.S. Army Corps of Engineers, Chicago District  
111 N. Canal St., Chicago IL, 60606  
[Sarah.D.Gross@usace.army.mil](mailto:Sarah.D.Gross@usace.army.mil)  
Office: 312-846-5334  
Mobile: 312-659-4354  
<http://facebook.com/usacechicago>  
<http://www.flickr.com/photos/usacechicago>  
Great Lakes and Mississippi River Interbasin Study (GLMRIS):  
<http://glmr.is.anl.gov>  
<http://facebook.com/glmris>

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

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**From:** Williamson, Eileen L NWO  
**Sent:** Wednesday, June 08, 2011 9:44 AM  
**To:** Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** FW: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

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Caveats: NONE

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**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 8:58 AM  
**To:** Williamson, Eileen L NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Yes. Remember, it rained directly on the reservoir.

-----Original Message-----

**From:** Williamson, Eileen L NWO  
**Sent:** Wednesday, June 08, 2011 8:56 AM  
**To:** [REDACTED] NWD02  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Was the inflow REALLY twice yesterday than the day before?!

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**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 8:47 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] K NWO; Farhat, Jody S NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Caveats: NONE

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Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED] NWO

---

**From:** Blechinger, Erik T NWO  
**Sent:** Wednesday, June 08, 2011 9:41 AM  
**To:** Ruch, Robert J COL NWO  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED]  
S NWO; Schenk, Kathryn M NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat,  
Jody S NWD02; [REDACTED] NWD; Tipton, Robert A Col NWD [REDACTED] NWD  
**Subject:** OPPD and Fort Calhoun

Sir;

Got a call from Tim Burke, VP of Public Affairs for OPPD. He would like to schedule a meeting between himself, the CEO of OPPD and the Chief of their Nuclear Office with our staff to discuss the releases and impacts to power generation through-out the summer. Specifically asked to do it after we reach our release high of 150k and wants to target the week of 20 June. My recommendation for USACE attendance would be you, Bertino, Remus, Schenk, Thomas, Farhat and me. They will come down here. If you are good with this, I would recommend Kim work with their scheduler to establish the date and then I will work agenda and outcomes directly with [REDACTED].

[REDACTED]  
Scheduler is [REDACTED] at ([REDACTED]).

Erik

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 08, 2011 8:47 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/8/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
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6/7 Ave Release: 125,500 cfs

6/8 Scheduled Release: 140,000 cfs

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 8:21 AM  
**To:** DLL-CENWO-OD-GA; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED]@POD;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO;  
[REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED] HQ02  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-8 Garrison Flood Fight Daily Staff Notes.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

All,  
I've attached the first edition of what will be our daily Garrison Project Flood Fight Staff Notes. The content of the staff notes will evolve with the flood fight and needs of personnel. If you have any suggestions which would improve the usefulness of the staff notes, please let me know.  
Thanks!  
Todd

P.S. Anyone in the cc list needs to let me know if they'd like to be added to my daily distribution and/or if there are others I should add? If I do not hear back from you, I will remove you from the distribution. I do not want to add unneeded information to your in-box!

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Wednesday, June 08, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.4 1 Top of Exclusive Flood Control Zone: 1854.0
  - Current Tailwater Elevation 1683.25
  - Inflows Currently 97,000 cfs, Releases: 130,000 cfs
  - Release Schedule: Hold 130,000 cfs today. Next scheduled increase is for 135,000 cfs on Friday. Goal remains 150,000 cfs.
  - All 28 spillway gates are open one foot. Gate #14 is open approximately 2 feet.
  - Current release distribution: Power Plant - 30,000 cfs, Regulating Tunnels – 60,000 cfs, Spillway – 40,000 cfs.
- Fort Peck Releases are a combined 50,000 cfs through their power plant and spillway. Releases will be increased to 55,000 cfs on Friday, June 10<sup>th</sup>, due to higher than forecasted runoff and recent precipitation in that basin.
- Williston:
  - Missouri River Elevation at 27.7 feet, forecasted to go to 28.0 feet by Friday. Previous Record State: 28.0 feet.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED]; cell: ([REDACTED]))
  - No major issues reported. There appears to be a minor slide of rock on the west bank of the tailrace. Pem will coordinate repairs with the Conservancy District.
  - An inspection of the rip rap on the upstream side of the Garrison dam and the Snake Creek Embankment will be performed today to check for any damage from recent high winds.
  - A camera to monitor the spillway, from the power plant control room, will be installed today.
  - Surveillance crews are being split. Day shift will work from 0500 to 1500; Night shift will work from 1400-2400. We will have a shift change meeting at 1400 hours.
- Instrumentation (Team Leader [REDACTED]; cell: ([REDACTED]))
  - No issues reported.
- Conservancy District is still working to finish stabilization of right and left banks on the tailrace. Contract is for \$125,000. POC, [REDACTED], cell ([REDACTED])
  - C-District is going to try and stabilize the West Tailrace road so it is available for future maintenance. This road will remain closed to the public for the foreseeable future.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:

- Inspection of both sides of embankment will be performed today. Inspection will be completed via boats.
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED], cell: (605) [REDACTED] or [REDACTED], cell: (605) [REDACTED]
- The boils at Williston are still flowing clear water. The contractor who performed the work to control these recent boils has declined performing additional work to stabilize our toe road. We are currently trying to locate contractors to bid this work.

#### **Natural Resources:**

- POC's [REDACTED], cell: [REDACTED], [REDACTED] (701) [REDACTED]
- East Diagonal road will be staffed by the Sheriff's Department from 6:00 am until 6:00 pm. West Diagonal will remain closed. All employees are to carry an orange "USACE Employee" sign for identification. All government vehicles working around the dam should have magnetic USACE Emergency Management placards and/or light bars.
- NR's will be providing Visitor Assistance at the Spillway overlook weekdays, from 8:30 am to 8:00 pm, and weekends from 8:00 am until 10:00 pm. Hours may vary dependent upon weather and actual visitation.
- I have requested DOT install 25 mph signs and flashing pedestrian lights at both overlook areas, via the State Emergency Operations Center.

#### **Weather/Safety:**

- We have had two minor vehicle accidents in the past two days. Both involved the surveillance crews while driving off road. Everyone needs to be very cautious!
- Cooler temps today, with highs in the lower 60's. Slight chance of rain today with winds up to 15 mph from the North/Northeast.
- I need a "volunteer" to prepare a formal evacuation plan for our personnel and operations immediately downstream of Garrison Dam, as well as at the Williston Levee. Looking for volunteers, I have examples to follow.
- Working to coordinate a "check-in/check-out" procedure for personnel coming to assist us. We need to coordinate vehicles, keys, cell phones, USACE placards, etc.

#### **Needed Resources:**

- Currently evaluating the need to bring back retirees to supplement our workforce. Mary Nerby will be working part time to assist.
- Pem Hall to order six "Road Closed" signs, stands, lights and extra batteries.
- Chuck Phelps working to obtain light bars for all vehicles working on the dam. Rangers will utilize red light bars for controlling traffic. All others will be yellow.
- I am updating a work schedule to ensure all flood related functions are covered. First draft will be out today.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact Todd Lindquist (cell: 701-220-2359 / Home: 701-487-3411).

**OPM Notes:**

- Flood team meetings will be held every morning at 0700 hours in the Outside Maintenance Building. Attendance by a representative from each Section working flood duties is expected.
- I expect all gate changes to be performed at the scheduled times and that I will be notified by the operator, directly, when they are occurring. This is important for a number of reasons. First, we are telling the public, and reporters, when changes will be made. i.e. our credibility is being scrutinized. Second, we may be coordinating downstream activities which need to be aware of changes and lastly, I want to double check that the changes are accurate. There is simply too much at stake to make a mistake in our releases or timing of those releases.

**Garrison Project Facts:**

- Top of Spillway Gates is elevation 1854 msl.
- Top of Dam is elevation 1875 msl.
- Exclusive flood control zone is elevation 1850-1854. We try to evacuate water from that zone as quickly and safely as possible.

[REDACTED] NWO

---

**From:** [REDACTED] M MVS  
**Sent:** Wednesday, June 08, 2011 7:58 AM  
**To:** [REDACTED] MVD; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED]  
LRDOR; [REDACTED] LRDOR; [REDACTED] SWD  
**Cc:** [REDACTED] HEC; [REDACTED] MVS; [REDACTED] MVS; [REDACTED] MVS  
**Subject:** MR&T Internal Evaluation Process of Reservoirs and Levees Data Call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

All, [REDACTED] is leading the internal evaluation process of how the MR&T system performed during this past historical event. He has tasked me to find the models (reservoir and river) currently being used by each District/Division. It is anticipated we will have a basin-wide model to identify the impacts to the MR&T system from reservoir operations. Please provide info to Jeff Harris and myself by early next week.

Thanks

[REDACTED]  
Chief, Water Control Operations  
St. Louis District

Classification: UNCLASSIFIED

Caveats: FOUO



**[REDACTED] NWO**

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**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 6:50 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Release Schedule (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Why are we coming up faster (on releases) at Garrison and Oahe, than Ft Randall and Gavins and putting water in Lake Francis Case? - I think I know the answer to that one so let me ask you a different question - why aren't we coming up faster on our FR and GP releases? Do we have to take LFC up over 1362?

Thanks,

**[REDACTED]**  
Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Wednesday, June 08, 2011 12:05 AM  
**To:** McMahon, John R BG NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Ruch, Robert J COL NWO  
**Cc:** [REDACTED] NWD; [REDACTED] NWD  
**Subject:** Re: Press Conference

Sir-  
Believe timing of a press conference should be tied to:  
-adequate prep (thorough Q and A development and answers so everyone is on the same page)  
  
-timing of an event that is different from the norm (ie close to going to 150k cfs). That being said, since we'll be at 140k cfs, unsure if the 10k cfs increase warrants a press conference.  
  
Overall, more positives than negatives for conference; don't think we'd be smart in throwing it together in a short timeline.

Tony

Colonel Tony Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers  
B.B. 816-807-0129

----- Original Message -----

**From:** McMahon, John R BG NWD  
**To:** Blechinger, Erik T NWO; Farhat, Jody S NWD02; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK  
**Cc:** [REDACTED] NWD; [REDACTED] NWD  
**Sent:** Tue Jun 07 13:49:39 2011  
**Subject:** Press Conference

Team:

What do you think about hosting one of these to report out on the current status of each reservoir as we ramp up to 150K, how the levee system looks, where our concerns are, what the weather is looking like, rumor control, etc? All followed by a Q&a--with Jody, You, me, COL Ruch, COL Hofmann? Is this too hard to arrange? Who would come? Would it be broadcast? 1 hour max. Start around 1600 Wed. Please advise. Thanks.

Vr/John McMahon

-----Original Message-----

From: [REDACTED]  
Sent: Thursday, June 09, 2011 9:56 AM  
To: Farhat, Jody S NWD02  
Subject: RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,  
Load control has shifted from Oahe to Fort Randall. However, they are still using Oahe during the day to respond to some of the additional changes in energy demand.

Western is still pursuing other avenues to do load control. One of the options is to use some of Basin Electric's coal fired plants (Leland Olds, Antelope Valley) to assist with load control. Western is having some doubts about this working properly. They are also in the process of testing a Basin Electric gas turbine (Groton) to do load control. The communication infrastructure to use the gas turbine is still a work in progress. They have additional parts to be installed and likely won't do additional testing until Monday next week.

Western is very aware of our concerns and is working towards a solution. However, they are also expressing the opinion that they probably won't be able to completely eliminate fluctuations from the mainstem dams.

[REDACTED]

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 8:15 AM  
To: [REDACTED]  
Subject: FW: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - do we know if WAPA has firmed up plans on doing at least a good portion of their control with gass, and are we going to be switching to Garr or FTRA any time soon?

-----Original Message-----

From: McMahon, John R BG NWD  
Sent: Wednesday, June 08, 2011 10:59 PM  
To: Farhat, Jody S NWD02; [REDACTED] Anderson, G Witt NWD  
Cc: Ruch, Robert J COL NWO  
Subject: WAPA Regulating plant

Jody/[REDACTED]Witt:  
Discussed the Oahe release situation with OPM Eric Stasch today and believe he/we had an expection from WAPA that Oahe would not continue this role past a few days ago--what's supposed to be happening? Does it matter? Should I get engaged with WAPA? Please advise.  
Thanks.  
Vr/John McMahon

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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Vr/John McMahon

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 8:44 AM  
**To:** Cieslik, Lawrence  
**Subject:** RE: June 2011 Forecast (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The monthly study model doesn't work with the high flows, so we're running the 3-week through August and then the monthly from Sept to Feb. Looking at various release scenarios, but don't know when it will hit the street. Our preferred plan at this point would be to continue with the very high releases through mid August and then ramp down to something closer that puts the river well within the channel for Sept - Nov so that we have time to inspect and repair this fall. I believe that would be a deviation from the manual, so we're working on those issues. We'd like to avoid have 70 to 80 kcfs all fall.

The staff is great, they're hanging in there. It's going to be a long summer.

Jody

-----Original Message-----

From: Cieslik, Lawrence [<mailto:Lawrence.Cieslik@hdrinc.com>]  
Sent: Thursday, June 09, 2011 7:33 AM  
To: Farhat, Jody S NWD02  
Subject: June 2011 Forecast

Jody:

Hate to bug you, but when do you think your June Forecast will hit the street?

P.S. - I think you and your staff are doing a great job, I am proud of you all.

Lawrence J. Cieslik

Senior Project Manager

HDR ONE COMPANY | Many Solutions  
8404 Indian Hills Drive | Omaha, NE | 68114-4049  
Phone: 402.548.5172 (direct)

Fax: 402.399.1111 | Email: [lawrence.cieslik@hdrinc.com](mailto:lawrence.cieslik@hdrinc.com) HDR Home: [www.hdrinc.com](http://www.hdrinc.com)  
<<http://www.hdrinc.com/>>

[REDACTED] F NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 10:07 AM  
**To:** McMahon, John R BG NWD; Ruch, Robert J COL NWO; Anderson, G Witt NWD; [REDACTED]  
NWD; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** FW: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir - see below for [REDACTED]'s update on where we are with WAPA. Bottom line is we're working with them on a solution, but there is infrastructure that has to be put in place and tested before they can use other generating facilities for load control. Even if it works, they probably won't be able to completely eliminate fluctuations at the dams though the frequency of changes may be less.

Jody

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 09, 2011 9:56 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,  
Load control has shifted from Oahe to Fort Randall. However, they are still using Oahe during the day to respond to some of the additional changes in energy demand.

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Cc: Ruch, Robert J COL NWO

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Vr/John McMahon

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:50 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - it would be best to funnel these calls through the JIC. They have developed the talking points for all these issues and if more detail is needed they schedule a time for me or one of the other subject matter experts to meet with them.

In this case, if you want to send me and Monique the reporter's name and number, we'll call him back.

Thanks,  
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**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

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**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 11:11 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Jody,

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-----Original Message-----



From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 11:03 AM  
To: [REDACTED] NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Forwarding this for guidance. In a quick discussion with Tim F. prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

-----Original Message-----

From: [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:[Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us)]  
Sent: Tuesday, June 07, 2011 11:37 AM  
To: [REDACTED] NWO  
Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE

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Caveats: NONE

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Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 12:22 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

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Caveats: NONE

Monique - can you make contact with the reported and set up a time for an interview. The Omaha District CMT got moved, so I'm available until 3:00.

Thanks,  
Jody

-----Original Message-----

**From:** Stasch, Eric D NWO  
**Sent:** Thursday, June 09, 2011 12:18 PM  
**To:** Farhat, Jody S NWD02; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

This KSFY TV out of Sioux Falls. Contact Person is Jamie Stubbe 605-785-0813.

The reporter on site stated that the homeowner used some pretty strong words and feels that without some type of Corps response, a strong negative report will be heard by the viewers. I agree with this assessment.

They would at least like to try for a phone interview with our SME. They are requesting a call by 1500hrs to confirm if such an interview could be set up.

There was one other question that I already answered. That was the homeowner stated that Corps told him what elevation to flood proof his home to. He was part of the SE Pierre Buyout. I related that the elevation that was required was the FUTURE 100yr flood elevation plus 1 foot. I further related that this flood was beyond that event but would not know the actual return frequency until a later date when everything could be analyzed.

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:50 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

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[REDACTED]  
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To: Farhat, Jody S NWD02  
Cc: [REDACTED] NWO  
Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

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To: [REDACTED] NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
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Classification: UNCLASSIFIED  
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Q. Is this something that should be handled by someone out of Omaha???

-----Original Message-----

From: Tim.Flannery@state.sd.us [mailto:Tim.Flannery@state.sd.us]

Sent: Tuesday, June 07, 2011 11:37 AM

To: [REDACTED] NWO

Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
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Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 2:31 PM  
**To:** Blair, Amy E NWK  
**Cc:** [REDACTED] NWD02  
**Subject:** RE: SEator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Amy - we're still working out the details, and it may require a deviation to the Master Manual, but our current thinking is to evacuate enough water while we're at these high flows to allow us to have near normal flows in the fall, say Sept through Nov. This would allow folks time this fall to assess damage and make need repairs prior to winter so we're ready for the next year's flood season.

At this time we don't have an exact schedule or release rate, but in our discussions with district staff, we're thinking of shooting for releases in the 40,000 to 45,000 cfs range.

If we strictly followed the Master Manual, we would probably have releases in the range of 70,000 to 80,000 cfs which would inhibit any repairs to levees and other infrastructure until early December.

Once the system storage peaks and we're on our way back down, we'll have a much better idea what our options are, and of course we would be interested in hearing what folks think.

Jody

-----Original Message-----

**From:** Blair, Amy E NWK  
**Sent:** Thursday, June 09, 2011 2:19 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** SEator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hi, Jody

I received a few questions from Senator Blunt's office today. Could you please answer the following?

While we understand that the top line rate of storage evacuation may last well into August, when it is ratcheted down, can we, ROUGHLY, expect it be be ratcheted down by one-quarter, one-half? Point of question is that even after mid-August, the reduced evacuation rates will still be very high or no?

Amy E. Blair  
Outreach Specialist

Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>  
Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
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Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:28 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I talked to this reporter and explained that this was greater than a 100-year event in the pierre area - talked about record runoff in May, etc.

Jody

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 12:25 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sorry wrong phone number. 605-373-7361 Jamie Stubbe

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**Sent:** Thursday, June 09, 2011 12:22 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

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To: [REDACTED] NWO

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Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:43 PM  
**To:** [REDACTED] NWD  
**Subject:** My talking pts for tonight (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 9 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - I got a call from a staffer from Congressman Rick Berg's (ND) office. They had folks calling concerned that we showed reservoir levels above the normal top of gates. He asked me to discuss this tonight so I've drafted something in my talking points. Could you review and give me your man on the street feedback?

It's just the first couple paragraphs of the attached.

Jody

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**9 June 2011**

Before I get to the reservoir releases, I'd like to first provide some clarity regarding the use of the spillways. In general, we open spillway gates for two reasons. The first reason we open spillway gates is when we need to release more water than we can pass through the power plant and/or the outlet tunnels. And second reason to open the spillway gates is to avoid flow over the top of the gates, which could damage the gates and prevent us from opening them in the future.

To date during this flood event, we have opened the gates for the first reason – to meet our release requirements that cannot be met through the power plants and outlet tunnels.

For example, at Gavins Point dam we have a limited powerplant release capacity, so even in non-flood years we often use the spillway at that project. This year, we've chosen to use the spillways at Fort Peck, Garrison, Big Bend, Fort Randall, and Gavins Point to meet our release requirement.

Opening the spillway has another effect of the reservoir besides just allowing us to pass additional water in a controlled manner. When the gates are physically raised allowing water to pass beneath them, it has the effect of raising the top of the reservoir allowing us to hold more water in the reservoir. That's why some of you may have noticed on our reservoir forecast that the peak reservoir levels are above what is normally considered to be the top of the gates. When the spillway gates are raised, we can usually reduce releases from the outlet tunnels and/or powerhouse to maintain the desired release rate.

The water is still being passed in a controlled manner; we're just taking advantage of the extra storage capacity that raising the gates provides.

Not updated past this point...

This afternoon we posted an updated reservoir forecast on our website which shows another change in our release schedule at Fort Peck dam in Montana. Due to heavy rain in Montana yesterday, some of which fell directly over the reservoir, inflows to that project today were double yesterday's rate. Inflows to Fort Peck are expected to remain above previously forecasted levels for the next 6 to 8 days due to yesterday's rain, combined with the additional rain discussed previously by the HPC and some snowmelt runoff.

As a result we are increasing Fort Peck releases sooner and to a higher level than shown on yesterday's forecast. The current schedule is to increase to 55,000 cfs tomorrow and 60,000 cfs on Friday. An additional increase to 65,000 cfs is not beyond the realm of possibility, but we will wait for the inflow forecast to verify over the next day or two before making that decision.

This increase in Fort Peck releases will allow us to better balance the flood storage in Fort Peck and Garrison reservoirs but will not result in a change in releases at Garrison or any of the other 5 mainstem dams.

The planned peak release of 150,000 cfs from Garrison, Oahe, Big Bend, Fort Randall and Gavins Point is still valid and absolutely necessary.

The Omaha District is currently in the process of assessing the likely impacts of the increase on communities downstream of Fort Peck Dam.

Planned releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:

- Fort Peck –Releases today 55,000 cfs, increasing to 60,000 cfs tomorrow.
- Garrison –130,000 cfs today, increasing to 135,000 cfs tomorrow, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, increasing to 140,000 cfs tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 140,000 cfs today, increasing to 145,000 cfs tomorrow and holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

There are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

We remind you that our updated forecast will be posted on the web each afternoon.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

Peak releases are expected to continue well into August.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
  - We had no basis on which to justify record releases prior to the repeated rounds of heavy rain in May. Regulation of the reservoir system is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.
  - Peak Releases for the basic and upper basic runoff condition in our April 1 forecast were as follows:
    - Fort Peck: 11,000 cfs basic, 18,000 cfs upper basin
    - Garrison: 30,500 cfs basic, 41,500 cfs upper basic
    - Oahe: 41,800 cfs basic, 55,300 cfs upper basin
    - Big Bend: 41,400 cfs basic, 55,000 cfs upper basin
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  - Mountain snowpack was tracking slightly above normal through early April, and then rose dramatically between mid-April and early May.
    - Jan 1 Snowpack = 112% FTPK, 120% GARR
    - Feb 1 Snowpack = 112% FTPK, 111% GARR
    - Mar 1 Snowpack = 109% FTPK, 106% GARR
    - Apr 1 Snowpack = 116% FTPK, 112% GARR
    - May 1 Snowpack = 141% FTPK, 136% GARR
    - Peak Snowpack = 141% FTPK on May 2, 136% GARR on May 2
  - At no time prior to mid May did we anticipate needing record releases from the mainstem reservoir system.
- Will this change the way the reservoir system is operated in future years?
  - The reservoir system has been operated in accordance with the Master Manual. The Master Manual Review and Update study, which was conducted between 1989 and 2004, analyzed the potential to provide additional flood control storage

by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

- 2011 is a new data point in the history of the Missouri River basin, both in terms of hydrology and flood plain impacts, and this event will certainly be studied in the future. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.
- Did you store water to help out the flooding on the Mississippi River?
  - We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for the benefit of the Mississippi River.
- Were releases held back earlier in the season to protect nesting least terns and piping plovers?
  - No operational decisions this year were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.

#### Climatic Conditions

- This flood event was due to repeated rounds of heavy rain, coupled with near record plains snowpack which filled up virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff. Mountain snowpack accumulation is much above normal and continued to accumulate well into May, reaching record levels in some areas. In addition, the melt has been delayed, increasing the likelihood of a rapid melt.
- Snowpack is well above historic levels and has only just begun to melt in others
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak
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- May 2011 runoff in the Missouri River basin above Sioux City was 10.5 MAF; the previous record May inflow was 7.2 MAF (1995)
  - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
  - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

#### Reservoir Releases

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- How long will the high flows continue?
  - High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
  - We don't have an exact schedule at this time. It will certainly depend on how the project facilities and the system of risk reduction measures performs with the high flows as well as runoff conditions in the coming months.
  - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.

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  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997
  
- Master Manual: We have received numerous questions from the media and the public about how we manage water releases from our reservoirs. I would just like to reemphasize that all of these decisions are based on the Master Manual, which is a water control plan that helps guide how much water should be released, when, and for how long from our reservoirs for the benefit of the entire Missouri River basin. The Master Manual is based on over 100 years of historical runoff records (1898-2004).

We revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were constructed.

- Duration: We are also getting many questions regarding the duration of the high flows. These peak releases will likely extend well into August. Our reservoir forecast posted on the web shows Fort Peck still in the surcharge pool, and Garrison and Oahe still in their exclusive flood control pools on 15 July. We need to maintain these high releases until the reservoirs are back down to a manageable level.

The other guiding principle here is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies to our mainstem dams as well as impacted communities, infrastructure and flood risk mitigation projects downstream of the dams. Over the next several days we will be looking at several scenarios for evacuating the flood water stored in the mainstem reservoir system and will provide better estimates when they become available.

[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:56 PM  
**To:** [REDACTED] NWO; mrjic@usace.army.mil; Blechinger, Erik T NWO  
**Cc:** [REDACTED] NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] and [REDACTED],

Requests for speakers and interviews should be funneled through the JIC. They are making this type of arrangements and determining who will represent the Corps at the various events.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 11:11 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Jody,

This and other similar ones will keep coming, I'm sure. We will need to think about having someone full time to answer these. Believe these should funnel thru you. Agree?

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 11:03 AM  
**To:** [REDACTED] NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Forwarding this for guidance. In a quick discussion with Tim F. prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

-----Original Message-----

**From:** [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:Tim.Flannery@state.sd.us]  
**Sent:** Tuesday, June 07, 2011 11:37 AM  
**To:** [REDACTED] NWO  
**Subject:** Government Operations and Audit Committee meeting - June 21, 2011



To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED] NWO**

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 4:15 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; Blair, Amy E NWK  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)  
**Attachments:** damsafetytps.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Sorry - I forgot the attachment.

Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:39 PM  
**To:** [REDACTED] NWD; [REDACTED] NWO  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; Blair, Amy E NWK  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

A few edits regarding use of spillways.

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 09, 2011 3:23 PM  
**To:** [REDACTED] NWO; Farhat, Jody S NWD02  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; Blair, Amy E NWK  
**Subject:** Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks [REDACTED]. Would very much appreciate a quick review by you and Jody of these proposed talking points I drew out of the info you sent me and our conversation yesterday. Thanks for your time -- it was great meeting you.

By the way, we do have a query in today from the Kansas Water Office (Nathan Westrup) asking these very questions, so I'd like to get back to him today.

Thanks! [REDACTED]

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 08, 2011 3:41 PM  
**To:** [REDACTED] NWD  
**Subject:** St Louis Dispatch Article.docx

Per your request - I cut and pasted a small section about the dam safety program on this sheet as well.

Also - John Bertino is the District's Dam Safety Officer (DSO). In case you are not aware, John's has a lot of background with the dam safety program and I would suggest that he remain the Primary POC with Dam questions. I am sure he can defer myself or [REDACTED] for the latest up to date info, or when he is too busy.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] IWO

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 4:42 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; A [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 8 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 9 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**9 June 2011**

Before I get to the reservoir releases, I'd like to first provide some clarity regarding the use of the spillways. In general, we open spillway gates for two reasons. The first reason we open spillway gates is when we need to release more water than we can pass through the power plant and/or the outlet tunnels. The second reason to open the spillway gates is to avoid flow over the top of the gates, which could damage the gates and prevent us from opening them in the future.

To date during this flood event, we have opened the gates only for the first reason – to meet our release requirements that cannot be met through the power plants and outlet tunnels.

For example, at Gavins Point dam we have a limited powerplant release capacity, so even in non-flood years we often use the spillway at that project. This year, we've chosen to use the spillways at Fort Peck, Garrison, Big Bend, Fort Randall, and Gavins Point to meet our release requirement.

Opening the spillway has another effect of the reservoir besides just allowing us to pass additional water in a controlled manner. When the gates are physically raised allowing water to pass beneath them, it has the effect of raising the top of the reservoir thus allowing us to hold more water in the reservoir. That's why some of you may have noticed on our reservoir forecast that the peak reservoir levels are above what is normally considered to be the top of the gates. When the spillway gates are raised, we can usually reduce releases from the outlet tunnels and/or powerhouse to maintain the desired release rate.

The water is still being passed in a controlled manner; we're just taking advantage of the extra storage capacity that raising the gates provides.

We posted the updated reservoir forecast to the web this afternoon. There were no changes to planned releases. The release schedule for the 6 dams are as follows:

- Fort Peck –Releases today 55,000 cfs, increasing to 60,000 cfs tomorrow.
- Garrison –130,000 cfs today, increasing to 135,000 cfs tomorrow, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
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- Gavins Point – 140,000 cfs today, increasing to 145,000 cfs tomorrow and holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

Again, there are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
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by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

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- Did you store water to help out the flooding on the Mississippi River?
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[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 5:13 PM  
**To:** McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; B [REDACTED] M NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] D NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** Re: WM Talking Points for 8 June stakeholder call (UNCLASSIFIED)

One small change, we delayed the increase scheduled at FTRA today because the GAPT pool was coming up a little due to faster travel times associated with the high releases. This doesn't affect other project releases.

Jody

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] SAW  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Sent:** Thu Jun 09 14:42:29 2011  
**Subject:** RE: WM Talking Points for 8 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 7:01 PM  
To: [REDACTED] NWO; [REDACTED] NWD02  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't know if [REDACTED] replied, but I think the short answer is yes. [REDACTED] may be able to quantify the change in travel time, but velocities are no doubt faster.

Jody

-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 2:40 PM  
To: [REDACTED] NWD02; Farhat, Jody S NWD02  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Are our river travel times significantly affected by the higher velocities we're seeing with the increased flows? I'm getting quite a few questions about travel times when we make changes in our releases...

-----Original Message-----

From: [REDACTED] NWD02  
Sent: Saturday, May 14, 2011 2:16 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Do you have the one from the current manual? I've attached one that is intended for the updated manual. The graphics need to be cleaned up, but I think you can read it. It probably still needs some verification.

The chart shows the leading edge of the change. For example, it shows Bismarck at about 30 hours. The time to peak and stabilize is somewhat dependant on the magnitude of the increase/decrease and whether there's any peaking, etc. As a rule of thumb, I would use something closer to 2 days for it to stabilize at Bismarck.

[REDACTED]  
-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Saturday, May 14, 2011 11:18 AM  
To: [REDACTED] NWO; [REDACTED] NWD02  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Todd I don't recall either, but I suspect that [REDACTED] can answer the question. I know he has looked at the travel time chart and made a few adjustments.

Jody

-----Original Message-----

From: [REDACTED] NWO  
Sent: Saturday, May 14, 2011 11:09 AM  
To: Farhat, Jody S NWD02  
Subject: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Jody,  
Do we have an updated chart for river travel times below Garrison? I have an old one and when discussing it with the NWS, they asked if the chart shows the time for the leading edge of our changes or the time that it would take to peak and stabilize? I did not know, do you?

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:30 PM  
**To:** Anderson, G Witt NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Key timeline dates (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Witt - here are the key dates

Jan 28 - minimum system storage = 56.8 MAF

April 1 forecast - Garrison summer releases = 29 kcfs; Gavins Point summer & fall releases = 39-45 kcfs; mountain snowpack 116% and 112% of normal; canceled May spring pulse

April 25 - Jody email to USFWS - no bird operations this year due to high water

May 1 forecast - Garrison summer releases = 49 kcfs; Gavins Point summer releases = 57.5 kcfs; mountain snowpack = 141% and 136% of normal peak

May 10-11 - 2.5 to 3.5 inches rain in eastern Montana

May 20 - Press release Garrison releases to increase to 60 kcfs

May 20-22 - 5-8 inches rain in eastern Montana, western South Dakota, and northern Wyoming

May 23 - Press release announcing Garrison releases to 75 kcfs, Gavins Point to 75 kcfs

May 24 - CODEL call and press release announcing Garrison releases to 85 kcfs, Gavins Point to 85 kcfs

May 25 - 1.5 to 2 inches rain in eastern Montana

May 26 CODEL call announces releases 110 to 120 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 27 QPF shows additional heavy rain forecast

May 28 CODEL call announces releases to 150 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 30-31 - 2-4 inches of rain in Montana

May 30 First MRJIC Stakeholder call

I'm working on the more detailed timeline, but these were the critical events.

Let me know if you have any questions.

Jody

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 9:56 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,  
Load control has shifted from Oahe to Fort Randall. However, they are still using Oahe during the day to respond to some of the additional changes in energy demand.

Western is still pursuing other avenues to do load control. One of the options is to use some of Basin Electric's coal fired plants (Leland Olds, Antelope Valley) to assist with load control. Western is having some doubts about this working properly. They are also in the process of testing a Basin Electric gas turbine (Groton) to do load control. The communication infrastructure to use the gas turbine is still a work in progress. They have additional parts to be installed and likely won't do additional testing until Monday next week.

Western is very aware of our concerns and is working towards a solution. However, they are also expressing the opinion that they probably won't be able to completely eliminate fluctuations from the mainstem dams.

[REDACTED]

-----Original Message-----  
**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 8:15 AM  
**To:** [REDACTED]  
**Subject:** FW: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - do we know if WAPA has firmed up plans on doing at least a good portion of their control with gass, and are we going to be switching to Garr or FTBA any time soon?

-----Original Message-----  
**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 08, 2011 10:59 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] Anderson, G Witt NWD  
**Cc:** Ruch, Robert J COL NWO  
**Subject:** WAPA Regulating plant

Jody [REDACTED] Witt:  
Discussed the Oahe release situation with OPM Eric Stasch today and believe he/we had an expectation from WAPA that Oahe would not continue this role past a few days ago--what's supposed to be happening? Does it matter? Should I get engaged with WAPA? Please advise.  
Thanks.  
Vr/John McMahon

[REDACTED]

---

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Tuesday, June 07, 2011 4:05 PM  
**To:** Blair, Amy E NWK; Blechinger, Erik T NWO  
**Cc:** [REDACTED] Farhat,  
Jody S NWD02; [REDACTED]  
**Subject:** Re: Congressman Graves Congresswoman Jenkins Dashboard Tour (UNCLASSIFIED)

Thanks Amy--I appreciate it.

Erik- will MRJIC get talking points together? My guess is that we will need to:

1. Clearly explain how the conditions in the upper basin transpired and why earlier releases were not possible.
2. Can we hold more water in the upper basin? If not, why not? The question will come up.
3. In Sioux City area, there are advanced measures taking place with USACE. We need to explain our advanced measures in the lower basin. Jud K. will have these.

I've added Mr. Anderson for his awareness as well since he'll be with us on Friday.  
V/r,

Colonel Tony Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers  
B.B. 816-807-0129

---

**From:** Blair, Amy E NWK  
**To:** Hofmann, Anthony J COL NWK  
**Cc:** [REDACTED]  
NWK; Blechinger, Erik T NWO  
**Sent:** Tue Jun 07 09:49:24 2011  
**Subject:** Congressman Graves Congresswoman Jenkins Dashboard Tour (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

I just got off the phone with Melissa Roe from Congressman Graves' office relaying her concerns about the dashboard tour on Friday.

Melissa stated that a pre-brief with you, Congressman Graves and Congresswoman Jenkins could occur before the "tour" begins.

The thought was to have the Levee District President, a few choice CEOs/Presidents of local companies and possibly the mayor and Director of Public Works. This is not intended to be a public meeting, and will not turn into such. She is going to give me the list of all expected meeting attendees sometime tomorrow when she can sit down and work through the specific meeting details.





to adjust generation wherever the dispatcher tells me. I have called several different times over the last few nights to try and get them to go back to our forecasted generation totals. If they do sharply reduce load, I am at their mercy when I ask how long we will be at that load when trying to determine if I need to call people out to adjust gates. There is currently a plus or minus 300MW band for allowable daily MWs on the Power Production Order. That used to be a plus or minus 100MWs in the not to distant past. It seems to me if RCC wanted tight flow controls they would lower the control band.

I have a suspicion that Ft Peck is the first place that gets called when a load reduction is needed. In the past it has been no big deal and we have always worked with WAPA, but the game has changed. When dispatchers have "load curtailments" are they splitting it up, up and down the river, and are they then backing off the steamers so we can return to forecast loads? I have worked at a steam plant, and it takes a little while to reduce load, but it does not take hours. It realize it is much easier to run a hydro up and down, but at some point, somebody needs to look at shutting some steamers down or way back. The dispatcher has a huge role in all of this, if he is good he can make the appropriate moves before he "gets in a real bind".

At some hydros, like Libby, they control to flow, not MW's, is that something we could look into while we are in flood fight mode? Also, when we lose AGC capability for whatever reason, WAPA has the ability to transfer AGC control to Loveland. Not running in AGC would probably cost someone some money based on my knowledge of generation control, but if U-1 were run in setpoint load we could better stabilize and maintain flows.

I realize we will probably just stay business as usual, even though times are definitely not usual, but I thought I would share my ideas.

Thanks,

[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 10:55 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED], Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]  
[REDACTED] DLL-CENWO-OD-FP OPER, [REDACTED]  
[REDACTED]  
**Subject:** RE: Powerhouse Flows (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Adam:

You make some very good points. It is very important that we maintain flows. Right now flows are more important than MW. I forwarded this to RCC folks to see if they can find a solution on this.

John

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 12:23 AM  
**To:** [REDACTED]  
**Subject:** Powerhouse Flows (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Maybe it's just that I am on a long run of night shifts and have too much time to think about it, but I have some concerns/suggestions about maintaining our scheduled flows from the powerhouse. Some of this stuff is above my pay grade, but I thought it wouldn't hurt to ask.

Our hourly forecast generation total is 202 MW or 4850 per day. This number is only 20 MW below what the units can put out if we run them all out max all the time. However, due to U-1 being in AGC mode and some units being limited at times due to reactive capability restrictions (VARs), it is unlikely we will be able to run at full capacity nonstop. So, if a generation dispatcher calls up and asks us to lower generation say by 20MW for several hours, it is going to take a lot longer to make up for that reduced generation, because we may only be running at 210.

How important is it that we maintain powerhouse flows? I know we have plus-minus CFS limits in our standing order but that seems to be being ignored right now. My current instruction is to adjust generation wherever the dispatcher tells me. I have called several different times over the last few nights to try and get them to go back to our forecasted generation totals. If they do sharply reduce load, I am at their mercy when I ask how long we will be at that load when trying to determine if I need to call people out to adjust gates. There is currently a plus or minus 300MW band for allowable daily MWs on the Power Production Order. That used to be a plus or minus 100MWs in the not too distant past. It seems to me if RCC wanted tight flow controls they would lower the control band.


I have a suspicion that Ft Peck is the first place that gets called when a load reduction is needed. In the past it has been no big deal and we have always worked with WAPA, but the game has changed. When dispatchers have "load curtailments" are they splitting it up, up and down

the river, and are they then backing of the steamers so we can return to forecast loads? I have worked at a steam plant, and it takes a little while to reduce load, but it does not take hours. It realize it is much easier to run a hydro up and down, but at some point, somebody needs to look at shutting some steamers down or way back. The dispatcher has a huge role in all of this, if he is good he can make the appropriate moves before he "gets in a real bind".

At some hydros, like Libby, they control to flow, not MW's, is that something we could look into while we are in flood fight mode? Also, when we lose AGC capability for whatever reason, WAPA has the ability to transfer AGC control to Loveland. Not running in AGC would probably cost someone some money based on my knowledge of generation control, but if U-1 were run in setpoint load we could better stabilize and maintain flows.

I realize we will probably just stay business as usual, even though times are definitely not usual, but I thought I would share my ideas.

Thanks,

  
Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 10:40 AM  
**To:** [REDACTED]  
NWO  
**Cc:** Farhat, Jody S NWD02, [REDACTED]  
**Subject:** RE: WAA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI - WAPA is backing Big Bend down to 5 units starting tonight at 2200. This means we will have to raise our gates an additional 3 ' to maintain releases.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 10:36 AM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02, [REDACTED]  
**Subject:** RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Western has requested that we take two of our four units off line this weekend at Garrison, due to expected decreases in demand. That too creates some operational and maintenance challenges, as we now expect to see increased wave action below our switchyard and expect this will exacerbate the sloughing we've been trying to stay ahead of...

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 10:31 AM  
**To:** [REDACTED]  
**Subject:** RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Kind of what I figured. Am planning to have personnel at the Outlet works control for the remainder of this flood event, 7 days a week hopefully only during the day. We are now looking at 11hr days (0600-1730).

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 10:20 AM  
**To:** [REDACTED]  
**Subject:** FW: WAPA Regulating plant (UNCLASSIFIED)

FYI

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 10:07 AM

To: McMahon, John R BG NWD; Ruch, Robert J COL NWO; Anderson, G Witt NWD; [REDACTED]

Subject: FW: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sir - see below for [REDACTED]'s update on where we are with WAPA. Bottom line is we're working with them on a solution, but there is infrastructure that has to be put in place and tested before they can use other generating facilities for load control. Even if it works, they probably won't be able to completely eliminate fluctuations at the dams though the frequency of changes may be less.

Jody

-----Original Message-----

From: [REDACTED] NWD

Sent: Thursday, June 09, 2011 9:56 AM

To: Farhat, Jody S NWD02

Subject: RE: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody,

Load control has shifted from Oahe to Fort Randall. However, they are still using Oahe during the day to respond to some of the additional changes in energy demand.

Western is still pursuing other avenues to do load control. One of the options is to use some of Basin Electric's coal fired plants (Leland Olds, Antelope Valley) to assist with load control. Western is having some doubts about this working properly. They are also in the process of testing a Basin Electric gas turbine (Groton) to do load control. The communication infrastructure to use the gas turbine is still a work in progress. They have additional parts to be installed and likely won't do additional testing until Monday next week.

Western is very aware of our concerns and is working towards a solution. However, they are also expressing the opinion that they probably won't be able to completely eliminate fluctuations from the mainstem dams.

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 09, 2011 8:15 AM

To: [REDACTED]

Subject: FW: WAPA Regulating plant (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] - do we know if WAPA has firmed up plans on doing at least a good portion of their control with gass, and are we going to be switching to Garr or FTFA any time soon?

-----Original Message-----

**From:** Anderson, G Witt NWD  
**Sent:** Thursday, June 09, 2011 11:41 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Key timeline dates (UNCLASSIFIED)

Thanks Jody, this will be helpful. Appreciate your work!

Witt  
-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Anderson, G Witt NWD  
**Cc:** Farhat, Jody S NWD02  
**Sent:** Thu Jun 09 21:30:11 2011  
**Subject:** Key timeline dates (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Witt - here are the key dates

Jan 28 - minimum system storage = 56.8 MAF

April 1 forecast - Garrison summer releases = 29 kcfs; Gavins Point summer & fall releases = 39-45 kcfs; mountain snowpack 116% and 112% of normal; canceled May spring pulse

April 25 - Jody email to USFWS - no bird operations this year due to high water

May 1 forecast - Garrison summer releases = 49 kcfs; Gavins Point summer releases = 57.5 kcfs; mountain snowpack = 141% and 136% of normal peak

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May 20 - Press release Garrison releases to increase to 60 kcfs

May 20-22 - 5-8 inches rain in eastern Montana, western South Dakota, and northern Wyoming

May 23 - Press release announcing Garrison releases to 75 kcfs, Gavins Point to 75 kcfs

May 24 - CODEL call and press release announcing Garrison releases to 85 kcfs, Gavins Point to 85 kcfs

May 25 - 1.5 to 2 inches rain in eastern Montana

May 26 CODEL call announces releases 110 to 120 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 27 QPF shows additional heavy rain forecast

May 28 CODEL call announces releases to 150 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 30-31 - 2-4 inches of rain in Montana

May 30 First MRJIC Stakeholder call

I'm working on the more detailed timeline, but these were the critical events.

Let me know if you have any questions.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:30 PM  
**To:** Anderson, G Witt NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Key timeline dates (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Witt - here are the key dates

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May 30-31 - 2-4 inches of rain in Montana

May 30 First MRJIC Stakeholder call

I'm working on the more detailed timeline, but these were the critical events.

Let me know if you have any questions.

Jody



Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

---

**From:** Farmer, Monique L NWO  
**Sent:** Thursday, June 09, 2011 7:55 PM  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Subject:** Op-Ed Piece for Sunday circulation (UNCLASSIFIED)  
**Attachments:** McMahon Master Manual.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Sir:

Per your request, I have attached a draft version of the Op-Ed piece on the Master Manual for circulation in newspapers this weekend--aiming for Sunday circulation in the major dailies throughout the region.

Please edit and return to me at your convenience and I will distribute.

Very respectfully,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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Classification: UNCLASSIFIED  
Caveats: NONE



**U.S. ARMY CORPS OF ENGINEERS**

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# **NEWS RELEASE**

For Immediate Release: June 26, 2011

Contact: Monique Farmer (402) 996-3877  
[monique.l.farmer@usace.army.mil](mailto:monique.l.farmer@usace.army.mil)

## **Brigadier General McMahon: Master Manual guides regulation of Missouri River**

We've been fighting the Flood of 2011 for nearly three weeks now. Throughout the basin, the losses to families and communities have been heart-wrenching and our hearts go out to all who have been impacted by this unfortunate and unprecedented event.

One of the most frequently asked questions we get in our call center is, "Why didn't the Corps evacuate floodwaters sooner?" Simply put, the answer to that question is, "We did." At the beginning of the runoff season we had the full capacity of our flood risk reduction storage available to us. The game-changer has been the prolonged, heavy rains we have received in Montana and in the Dakotas since mid-May.

The Missouri River main stem reservoir system, which spans 1770 miles and includes six dams and reservoirs, provides flood risk reduction for communities from Fort Peck, Mont. to St. Louis, Mo. It is operated in accordance with the Missouri River Master Manual. The Master Manual includes a water control plan that helps guide how much water should be released, when, and for how long from the six reservoirs. It is based on hydrology models that consider variables like runoff volume, timing, and the shape of watersheds, and is based on more than 100 years of historical runoff records (1898-2004).

In 1989, the Corps initiated a review of the Missouri River Master Manual in response to the first major drought the Basin had experienced since the system was built and the needs of communities along the River. Re-opening the manual provided an opportunity for the public to voice their views on how the Missouri River should be operated. It was a 14-year journey of study and debate on the long-term management of the river. The review entailed extensive and thorough scientific research and hundreds of public meetings. We received thousands of comments from various stakeholders, Congressional and State representatives, Tribes, interest groups and members of the general public throughout the basin.

The Master Manual was updated in 2004. The water control plan in the manual provides for the Corps to serve the purposes for which Congress authorized construction of the system. These purposes include flood control, navigation, water supply, water quality, hydropower, irrigation, recreation, and fish and wildlife. The Corps strives to balance operation of the system to serve these purposes. For the past year, the Corps has been operating the System solely for Missouri River flood risk reduction.

As required by the Endangered Species Act of 1973, during the course of the Master Manual Review and Update, the Corps consulted with the United States Fish and Wildlife Service. In its 2003 Amended Biological Opinion, the Service concluded that the Corps' operation of the system jeopardized the continued existence of the endangered pallid sturgeon and two bird species. However, the service provided an alternative to jeopardy that allows the Corps to continue to serve all of the authorized purposes. In addition to several other elements, this alternative included modifications in reservoir releases.

---

**U.S. Army Corps of Engineers – Omaha District** 1616 Capitol Ave., Omaha, Neb. 68102  
<http://www.nwo.usace.army.mil/>

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In 2006, the Master Manual was again updated to reflect these flow modifications. In accordance with the criteria in the manual, and in compliance with the Endangered Species Act, at no time during the past year has the system been operated for endangered or other native or introduced species. Our priority has been flood risk reduction.

Each fall, the Corps forecasts the regulation of the Missouri River main stem system with various runoff scenarios for the remainder of the current year, plus the following calendar year and publishes a draft Annual Operating Plan. We hold a series of public meetings in each state throughout the basin to solicit feedback on our planned operations. We use that input from the public when developing our Final Annual Operating Plan, which is typically finalized in December of every year.

During the spring, we hold another round of meetings to update the public on our operations. Public involvement and transparency are key components of our Annual Operating Plan. Further, monthly and weekly forecasts are completed as well as daily assessments.

These historic and unprecedented releases we have experienced in the basin have pushed us into uncharted territory with respect to releases. There is no doubt that the Missouri River will be a changed river following these historic flows. As the Corps conducts reviews of our emergency response efforts and management of the Missouri River during this historic flood event, we will be presented with yet another opportunity to solicit feedback from the public about our operations.

In the meantime, we remain committed to this flood fight. We've dispatched teams of experts all along the basin to construct temporary levees. We've issued millions of sandbags and numerous pumps to support local flood fight efforts, avoid loss of life, minimize damages and help impacted communities. We remain in close collaboration with city, county, state and federal agencies, the Tribes and Congressional representatives and we will continue to do everything in our ability to assist communities throughout the duration of the Flood of 2011.

###

[REDACTED]

---

**From:** Anderson, G Witt NWD  
**Sent:** Thursday, June 09, 2011 7:35 PM  
**To:** Blechinger, Erik T NWO; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
**Cc:** Tipton, Robert A Col NWD  
**Subject:** FW: Mississippi/Missouri Rivers Post-Flood Assessment Plan (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

-----Original Message-----

**From:** McMahon, John R BG NWD  
**Sent:** Thursday, June 09, 2011 5:19 PM  
**To:** [REDACTED] Walsh, Michael J MG MVD; Peabody, John W MG LRDOR; Drolet, John D. COL LRDOR; Grisoli, William T MG HQ02  
**Cc:** Temple, Bo M MG HQ02; [REDACTED]  
[REDACTED]  
[REDACTED] Anderson, G Witt NWD; McMahon, John R BG NWD; [REDACTED] Tipton, Robert A Col NWD; [REDACTED]  
**Subject:** Re: Mississippi/Missouri Rivers Post-Flood Assessment Plan (UNCLASSIFIED)

Steve:

Thanks. Here's some immediate feedback. We look forward to further discussions/planning for this important initiative.

1. This comprehensive framework (CECW, 2 June 11) is generally a good approach with its two part focus on 1) immediate emergency repairs and 2) longer term post flood assessment.
2. Part 1 - we agree the MSC's should lead the efforts to determine immediate actions for system repair. Although the Missouri River flood is in progress, we have submitted initial estimates of funding requirements for the emergency supplemental bill development.
3. Part 2 - while it is appropriate to consider how the Missouri River flood control reservoirs were operated during the Mississippi River flood, it is also appropriate to conduct a separate assessment of the Missouri River flood as noted in the document second paragraph. The Missouri River flood is a distinct event from the earlier Mississippi event, and the present authorities for the Corps projects in the Missouri do not prescribe a coordinated operation for the entire Mississippi River basin.
4. Part 2 scope, tasks, questions - we suggest two PMP's (one for Mississippi and one for Missouri nested under an overall PgMP) that would further develop the specific tasks and activities. Under the Missouri PMP, we see two major efforts: 1) assessment of the 2011 flood fight operation ("Operation Mighty Mo"), including reservoir management, performance of physical structures and systems (dams, conveyance channels, levees, etc.), flood fight execution, etc; and 2) analysis of needs for improvements that can be made within existing authorities or requiring new authority. For example, the Missouri basin hydrology experienced in 2011 (and climate change) may suggest revisions to the water control manual (Missouri River Master Manual), which in turn, could raise questions about the balance of purposes/outputs under present authorities.
5. We agree the operational decision-making process evaluation inherent in Part 2 would benefit by qualified experts from outside the AOR.
6. Management structure - we support the use of a high level Steering Committee of USACE leaders, with product delivery responsibility at MSCs.



process, with an outlook towards improving system operation. The entire effort will be guided by a Steering Committee composed of HQUSACE and MSC leaders (see the last page of the attached file for the proposed organization of the steering committee.).

The effort will utilize current authorities, policies, procedures, tools and terminology, and be conducted by USACE staff, supplemented by contracted staff, as appropriate, and generally follow the robust review and independence tenets of EC 1165-2-209. We are still working on a "straw-man" PMP that would guide the field's efforts and the details on staffing requirements.

I would appreciate your critical review and thoughts on this draft proposal. Resetting the system (emergency repairs) for the next high water period is a top priority of the HQs team followed by a deliberate, operational assessment of our system.

Please forward comments to [REDACTED] and [REDACTED]

V/R,  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 7:25 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** Re: River Travel Time (UNCLASSIFIED)

Sorry, I didn't get a chance to look closely at this today. Jody's short answer is correct. I'll try to look at it tomorrow.

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** [REDACTED]  
**Sent:** Thu Jun 09 17:00:33 2011  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't know if [REDACTED] replied, but I think the short answer is yes. [REDACTED] may be able to quantify the change in travel time, but velocities are no doubt faster.

Jody

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 2:40 PM  
**To:** [REDACTED] Farhat, Jody S NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Are our river travel times significantly affected by the higher velocities we're seeing with the increased flows? I'm getting quite a few questions about travel times when we make changes in our releases...

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Saturday, May 14, 2011 2:16 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Do you have the one from the current manual? I've attached one that is intended for the updated manual. The graphics need to be cleaned up, but I think you can read it. It probably still needs some verification.



The chart shows the leading edge of the change. For example, it shows Bismarck at about 30 hours. The time to peak and stabilize is somewhat dependant on the magnitude of the increase/decrease and whether there's any peaking, etc. As a rule of thumb, I would use something closer to 2 days for it to stabilize at Bismarck.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Saturday, May 14, 2011 11:18 AM  
To: [REDACTED]  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't recall either, but I suspect that [REDACTED] can answer the question. I know he has looked at the travel time chart and made a few adjustments.

Jody

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, May 14, 2011 11:09 AM  
To: Farhat, Jody S NWD02  
Subject: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Jody,

Do we have an updated chart for river travel times below Garrison? I have an old one and when discussing it with the NWS, they asked if the chart shows the time for the leading edge of our changes or the time that it would take to peak and stabilize? I did not know, do you?

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 7:15 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] Farmer, Monique L NWO  
**Subject:** RE: McMahon Master Manuarchl.docx (UNCLASSIFIED)  
**Attachments:** McMahon Master Manuarchl (2).docx

Classification: UNCLASSIFIED  
Caveats: NONE

Just a couple minor edits from me.

[REDACTED]

-----Original Message-----  
From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 6:59 PM  
To: [REDACTED] Farmer, Monique L NWO  
Subject: RE: McMahon Master Manuarchl.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I added a few edits over Rose's.

Jody

-----Original Message-----  
From: [REDACTED]  
Sent: Thursday, June 09, 2011 6:42 PM  
To: Farhat, Jody S NWD02; [REDACTED] Farmer, Monique L NWO  
Subject: McMahon Master Manuarchl.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] rewrite.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



U.S. ARMY CORPS OF ENGINEERS

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# NEWS RELEASE

For Immediate Release: June 26, 2011

Contact: Monique Farmer (402) 996-3877  
[monique.l.farmer@usace.army.mil](mailto:monique.l.farmer@usace.army.mil)

## Brigadier General McMahon: Master Manual guides regulation of Missouri River

We've been fighting the Flood of 2011 for nearly three weeks now. Throughout the basin, the losses to families and communities have been heart-wrenching and our hearts go out to all who have been impacted by this unfortunate and unprecedented event.

One of the most frequently asked questions we get in our call center is, "Why didn't the Corps evacuate floodwaters sooner?" Simply put, the answer to that question is, "We did." At the beginning of the runoff season we had the full capacity of our flood risk reduction storage available to us. The game-changer has been the prolonged, heavy rains we have received in Montana and in the Dakotas since mid-May.

The Missouri River main stem reservoir system, which spans 1770 miles and includes six dams and reservoirs, provides flood risk reduction for communities from Fort Peck, MT to St. Louis, MO. It is operated in accordance with the Missouri River Master Manual. The Master Manual includes a water control plan that helps guide how much water should be released, when, and for how long from the six reservoirs. It is based on hydrology models that consider variables like runoff volume, timing, and the shape of watersheds, and is based on more than 100 years of historical runoff records (1898-2004).

In 1989, the Corps initiated a review of the Missouri River Master Manual in response to the first major drought the Basin had experienced since the System was built and the needs of communities along the River. Re-opening the manual provided an opportunity for the public to voice their views on how the Missouri River should be operated. It was a 14 year journey of study and debate on the long-term management of the river. The review entailed extensive and thorough scientific research and hundreds of public meetings. We received thousands of comments from various stakeholders, Congressional and State representatives, Tribes, interest groups and members of the general public throughout the basin.

The Master Manual was updated in 2004. The water control plan in the manual provides for the Corps to serve the purposes for which Congress authorized construction of the System. These purposes include flood control, navigation, water supply, water quality, hydropower, irrigation, recreation, and fish and wildlife. The Corps strives to balance operation of the System to serve these purposes. For the past year the Corps has been operating the System solely for **Missouri River** flood control.

As required by the Endangered Species Act of 1973, during the course of the Master Manual Review and Update the Corps consulted with the United States Fish and Wildlife Service (Service). In its 2003 Amended Biological Opinion the Service concluded that the Corps operation of the System jeopardized the continued existence of the endangered pallid sturgeon and two bird species. However, the Service provided an alternative to jeopardy that allows the Corps to continue to serve all of the authorized purposes. In addition to several other elements, this alternative included modifications in reservoir releases. In 2006 the Master Manual was again updated to reflect these flow modifications. In

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accordance with the criteria in the Manual, and in compliance with the ESA, at no time during the past year has the System been operated for endangered or other native or introduced species.

Each fall, the Corps forecasts the regulation of the Missouri River main stem system with various runoff scenarios for the remainder of the current year, plus the following calendar year and publishes a draft Annual Operating Plan. We hold a series of public meetings in each state throughout the basin to solicit feedback on our planned operations. We use that input from the public when developing our Final Annual Operating Plan, which is typically finalized in December of every year.

During the spring, we hold another round of meetings to update the public on our operations. Public involvement and transparency are key components of our Annual Operating Plan. Further, monthly, and weekly forecasts are completed as well as daily assessments.

These historic and unprecedented releases we have experienced in the basin have pushed us into uncharted territory with respect to releases. There is no doubt that the Missouri River will be a changed river following these historic flows. As the Corps conducts reviews of our emergency response efforts and management of the Missouri River during this historic flood event, we will be presented with yet another opportunity to solicit feedback from the public about our operations.

In the meantime, we remain committed to this flood fight. We've dispatched teams of experts all along the basin to construct temporary levees. We've issued millions of sandbags and numerous pumps to support local flood fight efforts, avoid loss of life, minimize damages and help impacted communities. We remain in close collaboration with city, county, state and federal agencies, the Tribes and Congressional representatives and we will continue to do everything in our ability to assist communities throughout the duration of the Flood of 2011.

###

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 6:42 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] Farmer, Monique L NWO  
**Subject:** McMahon Master Manuarchl.docx (UNCLASSIFIED)  
**Attachments:** McMahon Master Manuarchl.docx

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] rewrite.

Classification: UNCLASSIFIED

Caveats: NONE



U.S. ARMY CORPS OF ENGINEERS

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# NEWS RELEASE

For Immediate Release: June 26, 2011

Contact: Monique Farmer (402) 996-3877  
[monique.l.farmer@usace.army.mil](mailto:monique.l.farmer@usace.army.mil)

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purpose. In addition to several other elements, this alternative included modifications in System releases. In 2006 the Master Manual was again updated to reflect these flow modifications. As per the criteria in the Manual, and in compliance with the ESA, at no time during the past year has the System been operated for endangered or other native or introduced species.

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###



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 6:42 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Timeline PowerPoint (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

V:\public\Flood\_2011> Timeline - Basin Condition and Decisions.pptx

[REDACTED]  
[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED]  
[REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:45 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Thomas, Kimberly S  
[REDACTED] Farhat, Jody S NWD02; [REDACTED] [REDACTED] [REDACTED]  
**Subject:** FW: Flood report #7 Fort Peck (UNCLASSIFIED)  
**Attachments:** document2011-06-09-165236.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]:

Ian update to this report. We are still having trouble with our spillway feeder. One phase is still tripping. The problem has been isolated to be between the Shaft Substation and the first pole to the north. Most of this is underground. Power house staff is still trouble shooting. We will use our Spillway Hoist Car Emergency Generator tomorrow morning to make flow changes. If the problem is underground, we will have to install a temporary overhead line. Western Area Power has told us they would assist if needed.

[REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 4:07 PM  
**To:** [REDACTED] Thomas, Kimberly S NWO  
**Cc:** Farhat, Jody S NWD02; Swenson, [REDACTED]  
[REDACTED]  
**Subject:** Flood report #7 Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All - Please see attached report.

[REDACTED]  
U.S. Army Corps of Engineers  
[REDACTED]  
[REDACTED]  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

2

This morning spillway gates were opened to release 42,000 cfs. Emergency hoist car generator emergency power was used to raise gates this morning due to a power outage on the main feeder to the spillway. The problem was an osprey nest that caused a fault on the line. The line was repaired and returned to service. See attached report. All 16 gates are open 2.5 feet. Total discharge through Fort Peck Dam is 55,000 cfs. Twenty four hour dam and spillway surveillance is continuing. No issues at this time.

Phillips County picked up 3000 sandbags this morning.

Roosevelt County picked up 20,000 sandbags and 4 rolls of 12' x 100' poly.

Fort Peck Tribes picked up 30 rolls of 20' x 100' poly this afternoon.

We received delivery of 200 rolls of 20'x 100' poly this morning.

We received word from the State of Montana that we will receive a request for 1,000 sandbags to protect electrical equipment inside Hell Creek State Park on Fort Peck Lake.

Today a team from Fort Peck Project is deployed to Poplar assisting Fort Peck Tribes to construct a temporary levy. Levy should be completed tonight or early tomorrow.

Major Davis and [REDACTED] arrived on Project to assist in awarding of a riprap supply contract.

## Operation of the Spillway gates using Emergency power from the hoist car

On June 9<sup>th</sup> 2011, it became necessary to operate the Ft. Peck spillway gates using emergency power provided by the generator on the spillway hoist car. At 0437 the control room operator received indication that the 4160 volt feeder to the spillway had lost power. At 0509 the electrician crew was on site and at 0535 the mechanic crew was onsite.

It was determined that the spillway line was tripped by relay action due to nesting osprey on the line and that it would take 2-3 hours to return that line to service. The Ft Peck spillway was scheduled to be increased by 5000cfs at 0800.

While electrician crew began work to restore the line the mechanic crew positioned the hoist car at spillway gate #2 which has a receptacle provided to connect the hoist car generator. At approximately 0730 the hoist car was connected and the spillway bridge was energized. Spillway gate operation began at 0742 lifting one gate at a time. 12 gates were raised, 1-6 and 11-16, from 2.2 ft to 2.5 ft. Gate operation was complete at 0756 without incident.

At 0930 the electricians completed the work on the line and the line was reenergized. The hoist car was disconnected and returned to the spillway garage.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:39 PM  
**To:** Farmer, Monique L NWO  
**Cc:** Farhat, Jody S NWD02; Oldham, Margaret NWO  
**Subject:** RE: Call-in number for tomorrow's radio interview with KDSN (Dennison, IA)  
(UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I will be there -- thanks Monique.

-----Original Message-----

**From:** Farmer, Monique L NWO  
**Sent:** Thursday, June 09, 2011 5:38 PM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02; Oldham, Margaret NWO  
**Subject:** Call-in number for tomorrow's radio interview with KDSN (Dennison, IA)  
(UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Maggie and/or [REDACTED] will sit in as I will not be in until 9. The call-in number is 712-263-3141. Interview will take place in Col. Ruch's office. Call in at about 8:43 a.m. Back-up number is 800-929-5376.

They will want Mo river sitrep and Hamburg sitrep.

V r,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:38 PM  
**To:** [REDACTED]  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]; Farhat, Jody S NWD02  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Excellent! Many thanks to you both!!!

[REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:09 PM  
**To:** [REDACTED]  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]; Farhat, Jody S NWD02  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

I added my comments onto Jody's.

[REDACTED]

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 4:15 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sorry - I forgot the attachment.

Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:39 PM  
**To:** [REDACTED]  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

A few edits regarding use of spillways.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:23 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02



Cc: Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
Subject: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks [REDACTED] Would very much appreciate a quick review by you and Jody of these proposed talking points I drew out of the info you sent me and our conversation yesterday. Thanks for your time -- it was great meeting you.

By the way, we do have a query in today from the Kansas Water Office (Nathan Westrup) asking these very questions, so I'd like to get back to him today.

Thanks! [REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 08, 2011 3:41 PM  
To: [REDACTED]  
Subject: St Louis Dispatch Article.docx

Per your request - I cut and pasted a small section about the dam safety program on this sheet as well.

Also - John Bertino is the District's Dam Safety Officer (DSO). In case you are not aware, John's has a lot of background with the dam safety program and I would suggest that he remain the Primary POC with Dam questions. I am sure he can defer myself or [REDACTED] for the latest up to date info, or when he is too busy.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:38 PM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02; Oldham, Margaret NWO  
**Subject:** Call-in number for tomorrow's radio interview with KDSN (Dennison, IA) (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Maggie and/or [REDACTED] will sit in as I will not be in until 9. The call-in number is 712-263-3141. Interview will take place in Col. Ruch's office. Call in at about 8:43 a.m. Back-up number is 800-929-5376.

They will want Mo river sitrep and Hamburg sitrep.

V r,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 5:07 PM  
**To:** [REDACTED] Thomas, Kimberly S NWO  
**Cc:** Farhat, Jody S NWD02 [REDACTED]  
**Subject:** Flood report #7 Fort Peck (UNCLASSIFIED)  
**Attachments:** document2011-06-09-165236.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

All - Please see attached report.

[REDACTED]  
U.S. Army Corps of Engineers  
[REDACTED]  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

2

This morning spillway gates were opened to release 42,000 cfs. Emergency hoist car generator emergency power was used to raise gates this morning due to a power outage on the main feeder to the spillway. The problem was an osprey nest that caused a fault on the line. The line was repaired and returned to service. See attached report. All 16 gates are open 2.5 feet. Total discharge through Fort Peck Dam is 55,000 cfs. Twenty four hour dam and spillway surveillance is continuing. No issues at this time.

Phillips County picked up 3000 sandbags this morning.

Roosevelt County picked up 20,000 sandbags and 4 rolls of 12' x 100' poly.

Fort Peck Tribes picked up 30 rolls of 20' x 100' poly this afternoon.

We received delivery of 200 rolls of 20'x 100' poly this morning.

We received word from the State of Montana that we will receive a request for 1,000 sandbags to protect electrical equipment inside Hell Creek State Park on Fort Peck Lake.

Today a team from Fort Peck Project is deployed to Poplar assisting Fort Peck Tribes to construct a temporary levy. Levy should be completed tonight or early tomorrow.

Major Davis and [REDACTED] arrived on Project to assist in awarding of a riprap supply contract.

## Operation of the Spillway gates using Emergency power from the hoist car

On June 9<sup>th</sup> 2011, it became necessary to operate the Ft. Peck spillway gates using emergency power provided by the generator on the spillway hoist car. At 0437 the control room operator received indication that the 4160 volt feeder to the spillway had lost power. At 0509 the electrician crew was on site and at 0535 the mechanic crew was onsite.

It was determined that the spillway line was tripped by relay action due to nesting osprey on the line and that it would take 2-3 hours to return that line to service. The Ft Peck spillway was scheduled to be increased by 5000cfs at 0800.

While electrician crew began work to restore the line the mechanic crew positioned the hoist car at spillway gate #2 which has a receptacle provided to connect the hoist car generator. At approximately 0730 the hoist car was connected and the spillway bridge was energized. Spillway gate operation began at 0742 lifting one gate at a time. 12 gates were raised, 1-6 and 11-16, from 2.2 ft to 2.5 ft. Gate operation was complete at 0756 without incident.

At 0930 the electricians completed the work on the line and the line was reenergized. The hoist car was disconnected and returned to the spillway garage.

[REDACTED]

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 4:42 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] Love, Raymond E MAJ NWD; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: WM Talking Points for 8 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 9 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**9 June 2011**

Before I get to the reservoir releases, I'd like to first provide some clarity regarding the use of the spillways. In general, we open spillway gates for two reasons. The first reason we open spillway gates is when we need to release more water than we can pass through the power plant and/or the outlet tunnels. The second reason to open the spillway gates is to avoid flow over the top of the gates, which could damage the gates and prevent us from opening them in the future.

To date during this flood event, we have opened the gates only for the first reason – to meet our release requirements that cannot be met through the power plants and outlet tunnels.

For example, at Gavins Point dam we have a limited powerplant release capacity, so even in non-flood years we often use the spillway at that project. This year, we've chosen to use the spillways at Fort Peck, Garrison, Big Bend, Fort Randall, and Gavins Point to meet our release requirement.

Opening the spillway has another effect of the reservoir besides just allowing us to pass additional water in a controlled manner. When the gates are physically raised allowing water to pass beneath them, it has the effect of raising the top of the reservoir thus allowing us to hold more water in the reservoir. That's why some of you may have noticed on our reservoir forecast that the peak reservoir levels are above what is normally considered to be the top of the gates. When the spillway gates are raised, we can usually reduce releases from the outlet tunnels and/or powerhouse to maintain the desired release rate.

The water is still being passed in a controlled manner; we're just taking advantage of the extra storage capacity that raising the gates provides.

We posted the updated reservoir forecast to the web this afternoon. There were no changes to planned releases. The release schedule for the 6 dams are as follows:

- Fort Peck –Releases today 55,000 cfs, increasing to 60,000 cfs tomorrow.
- Garrison –130,000 cfs today, increasing to 135,000 cfs tomorrow, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 140,000 cfs today, increasing to 143,000 cfs tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 140,000 cfs today, increasing to 145,000 cfs tomorrow and holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

Again, there are many rumors floating around about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
  - We had no basis on which to justify record releases prior to the repeated rounds of heavy rain in May. Regulation of the reservoir system is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.
  - Peak Releases for the basic and upper basic runoff condition in our April 1 forecast were as follows:
    - Fort Peck: 11,000 cfs basic, 18,000 cfs upper basin
    - Garrison: 30,500 cfs basic, 41,500 cfs upper basic
    - Oahe: 41,800 cfs basic, 55,300 cfs upper basin
    - Big Bend: 41,400 cfs basic, 55,000 cfs upper basin
    - Fort Randall: 43,800 cfs basic, 57,700 cfs upper basic
    - Gavins Point: 45,000 cfs basic, 59,500 cfs upper basic
  - Peak Releases for the basic and upper runoff condition in our May 1 forecast were as follows:
    - Fort Peck: 20,000 cfs basic, 26,000 cfs upper basin
    - Garrison: 49,000 cfs basic, 61,500 cfs upper basic
    - Oahe: 54,100 cfs basic, 62,400 cfs upper basin
    - Big Bend: 54,000 cfs basic, 63,500 cfs upper basin
    - Fort Randall: 56,100 cfs basic, 66,200 cfs upper basic
    - Gavins Point: 57,500 cfs basic, 68,000 cfs upper basic
  - Mountain snowpack was tracking slightly above normal through early April, and then rose dramatically between mid-April and early May.
    - Jan 1 Snowpack = 112% FTPK, 120% GARR
    - Feb 1 Snowpack = 112% FTPK, 111% GARR
    - Mar 1 Snowpack = 109% FTPK, 106% GARR
    - Apr 1 Snowpack = 116% FTPK, 112% GARR
    - May 1 Snowpack = 141% FTPK, 136% GARR
    - Peak Snowpack = 141% FTPK on May 2, 136% GARR on May 2
  - At no time prior to mid May did we anticipate needing record releases from the mainstem reservoir system.
- Will this change the way the reservoir system is operated in future years?
  - The reservoir system has been operated in accordance with the Master Manual. The Master Manual Review and Update study, which was conducted between 1989 and 2004, analyzed the potential to provide additional flood control storage



by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

- 2011 is a new data point in the history of the Missouri River basin, both in terms of hydrology and flood plain impacts, and this event will certainly be studied in the future. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.
- Did you store water to help out the flooding on the Mississippi River?
  - We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for the benefit of the Mississippi River.
- Were releases held back earlier in the season to protect nesting least terns and piping plovers?
  - No operational decisions this year were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.

#### Climatic Conditions

- This flood event was due to repeated rounds of heavy rain, coupled with near record plains snowpack which filled up virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff. Mountain snowpack accumulation is much above normal and continued to accumulate well into May, reaching record levels in some areas. In addition, the melt has been delayed, increasing the likelihood of a rapid melt.
- Snowpack is well above historic levels and has only just begun to melt in others
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak
  - Garrison - crested at 141% of peak; currently 113% of the normal peak
- May 2011 runoff in the Missouri River basin above Sioux City was 10.5 MAF; the previous record May inflow was 7.2 MAF (1995)
  - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
  - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

#### Reservoir Releases

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- How long will the high flows continue?
  - High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
  - We don't have an exact schedule at this time. It will certainly depend on how the project facilities and the system of risk reduction measures performs with the high flows as well as runoff conditions in the coming months.
  - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997
  
- Master Manual: We have received numerous questions from the media and the public about how we manage water releases from our reservoirs. I would just like to reemphasize that all of these decisions are based on the Master Manual, which is a water control plan that helps guide how much water should be released, when, and for how long from our reservoirs for the benefit of the entire Missouri River basin. The Master Manual is based on over 100 years of historical runoff records (1898-2004).

We revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were constructed.

- Duration: We are also getting many questions regarding the duration of the high flows. These peak releases will likely extend well into August. Our reservoir forecast posted on the web shows Fort Peck still in the surcharge pool, and Garrison and Oahe still in their exclusive flood control pools on 15 July. We need to maintain these high releases until the reservoirs are back down to a manageable level.

The other guiding principle here is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies to our mainstem dams as well as impacted communities, infrastructure and flood risk mitigation projects downstream of the dams. Over the next several days we will be looking at several scenarios for evacuating the flood water stored in the mainstem reservoir system and will provide better estimates when they become available.

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 4:09 PM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** FW: Information Request from NE EMA (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

The latest reservoir forecast can be found at the following web site: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. This is updated daily.

The daily bulletin is located at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

If Mr. Zheng needs more information he can contact Jody Farhat.

What type of status report is Ms. LaMay looking for? If it is reservoir operations, she should consult the URLs above. If it is Emergency Ops information it would be [REDACTED]

[REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:45 PM  
**To:** [REDACTED]  
**Subject:** FW: Information Request from NE EMA (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks for looking at this.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 2:25 PM  
**To:** [REDACTED]  
**Subject:** Information Request from NE EMA

[REDACTED]

First: Shuhai Zheng, the Nebraska DNR Floodplain/Dam Safety head, has asked me to inquire if it is possible for him to access whatever real-time or as up-to-date as exists reservoir release data as we have. He has explained that he is working on planning, and wants the data especially for use in modelling. He took great care to express his understanding that if we considered the data sensitive, he has respect for that and would not share.

Second: NEMA's Missouri River POC, Alisia LaMay, has asked if there is a CENWO POC she can reach for status reports outside the regularly scheduled coordination. Potentially, you would be that person, but I wasn't going to say so until I'd checked with you.

Take care!

[REDACTED]  
[REDACTED]  
[REDACTED]  
Omaha District, USACE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 4:07 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Great -- did you put them in tracked changes or do you want me to come see you?

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:39 PM  
**To:** [REDACTED]  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** RE: Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

A few edits regarding use of spillways.

-----Original Message-----

**From:** A [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:23 PM  
**To:** [REDACTED], Farhat, Jody S NWD02  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** Dam Safety Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks Dave. Would very much appreciate a quick review by you and Jody of these proposed talking points I drew out of the info you sent me and our conversation yesterday. Thanks for your time -- it was great meeting you.

By the way, we do have a query in today from the Kansas Water Office (Nathan Westrup) asking these very questions, so I'd like to get back to him today.

Thanks! [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Wednesday, June 08, 2011 3:41 PM  
**To:** [REDACTED]  
**Subject:** St Louis Dispatch Article.docx

Per your request - I cut and pasted a small section about the dam safety program on this sheet as well.

Also - John Bertino is the District's Dam Safety Officer (DSO). In case you are not aware, John's has a lot of background with the dam safety program and I would suggest that he remain

the Primary POC with Dam questions. I am sure he can defer myself or [REDACTED] for the latest up to date info, or when he is too busy.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 4:07 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: did I send you this final version? If so, disregard! :-) (UNCLASSIFIED)  
**Attachments:** Master Manual TPs.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Yes, I did. Sorry if I forgot to send it to you.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:45 PM  
**To:** [REDACTED]  
**Subject:** RE: did I send you this final version? If so, disregard! :-) (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

One more thing, did you update the Master Manual talking points to include Witt's comments?  
I don't recall seeing them.

Jody

-----Original Message-----

**From:** Austin-Smith, Christina A NWD  
**Sent:** Monday, June 06, 2011 6:28 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** did I send you this final version? If so, disregard! :-) (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

C [REDACTED]  
[REDACTED] Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



## **UPDATED: Master Manual and General Reservoir Ops Talking Points:**

The Missouri River Mainstem Reservoir System, which includes 6 dams, is operated in accordance with the Master Manual. The Master Manual is a water control plan that helps guide how much water should be released, when, and for how long from the 6 reservoirs for the benefit of the entire Missouri River basin. The Master Manual hydrology (runoff volume, timing, shape of watersheds, etc) is based on over 100 years of historical runoff records (1898-2004).

The Corps revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were authorized and constructed.

The reservoir system is designed to capture spring and summer runoff to provide flood risk reduction, and then allows the Corps to manage releases throughout the year to accommodate the other 7 authorized purposes: navigation, irrigation, water supply, hydropower, fish and wildlife, recreation, and water quality.

Each year an annual operating plan is developed to make necessary adjustments to our reservoir operations based on current and projected annual conditions, such as: amount of water received the previous year, rainfall events, plains snow pack, and mountain snow pack. This annual plan is circulated every fall and public meetings are held through the Missouri River Basin to gain inputs from the public and Tribes.

The actual operation of the System is reviewed and, if required, adjusted on a daily basis depending on current and forecasted conditions.

### **Answers to frequently asked Master Manual Questions:**

Were releases held back earlier in the season to protect nesting least terns and piping plovers?

Answer: No operational decisions this year were driven by the needs of fish and wildlife or the Endangered Species Act – we have been operating solely for flood risk reduction. In fact, the Master Manual provides for a Spring Pulse to aid Endangered Species, which is an increase in flows during March and May; that we did not implement in 2011 because flows were already above normal and because the risk to potential flooding downstream of Gavins Point. Summer adjustments to operations to minimize flooding of protected tern and plover eggs and chicks did not take place this year due to high flow conditions.

Will this change the way the reservoir system is operated in future years?

Answer: The reservoir system has been operated in accordance with the Master Manual. However, 2011 will be a new data point in the history of the Missouri River Basin, both in terms of hydrology and flood plain impacts, so this event will certainly be studied in the future. The Corps will conduct an extensive review following the flooding this year to assess the operation, its effects, and learn where improvements or adjustments might be warranted. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.

**Prepared by: MRJIC, Updated 7 June 2011**

**Approved by: Erik Blechinger/Jody Farhat**

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:58 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Got it

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 3:56 PM  
**To:** [REDACTED] MRJIC; Blechinger, Erik T NWO  
**Cc:** [REDACTED]  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] and [REDACTED]

Requests for speakers and interviews should be funneled through the JIC. They are making this type of arrangements and determining who will represent the Corps at the various events.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 11:11 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Jody,

This and other similar ones will keep coming, I'm sure. We will need to think about having someone full time to answer these. Believe these should funnel thru you. Agree?

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 11:03 AM  
**To:** [REDACTED]; Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Forwarding this for guidance. In a quick discussion with [REDACTED] prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

[REDACTED]

-----Original Message-----

From: [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:[Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us)]

Sent: Tuesday, June 07, 2011 11:37 AM

To: [REDACTED]

Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:57 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thank You.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 3:28 PM  
To: [REDACTED] Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I talked to this reporter and explained that this was greater than a 100-year event in the pierre area - talked about record runoff in May, etc.

Jody

-----Original Message-----

From: [REDACTED]  
Sent: Thursday, June 09, 2011 12:25 PM  
To: Farhat, Jody S NWD02; [REDACTED] Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sorry wrong phone number. 605-373-7361 Jamie Stubbe

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 12:22 PM  
To: [REDACTED] Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monique - can you make contact with the reported and set up a time for an interview. The Omaha District CMT got moved, so I'm available until 3:00.

Thanks,  
Jody

-----Original Message-----

From: [REDACTED]  
Sent: Thursday, June 09, 2011 12:18 PM  
To: Farhat, Jody S NWD02; [REDACTED] Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

This KSFY TV out of Sioux Falls. Contact Person is Jamie Stubbe 605-785-0813.

The reporter on site stated that the homeowner used some pretty strong words and feels that without some type of Corps response, a strong negative report will be heard by the viewers. I agree with this assessment.

They would at least like to try for a phone interview with our SME. They are requesting a call by 1500hrs to confirm if such an interview could be set up.

There was one other question that I already answered. That was the homeowner stated that Corps told him what elevation to flood proof his home to. He was part of the SE Pierre Buyout. I related that the elevation that was required was the FUTURE 100yr flood elevation plus 1 foot. I further related that this flood was beyond that event but would not know the actual return frequency until a later date when everything could be analyzed.

I feel this is a very important issue to address with the local news. It is foremost in the public's concern with the recent operation of the reservoirs. Not to take advantage of the opportunity to tell our side of the story would be most unfortunate.

[REDACTED]

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Thursday, June 09, 2011 11:50 AM  
To: [REDACTED] Johnston, Paul T HQ@ NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - it would be best to funnel these calls through the JIC. They have developed the talking points for all these issues and if more detail is needed they schedule a time for me or one of the other subject matter experts to meet with them.

In this case, if you want to send me and Monique the reporter's name and number, we'll call him back.

Thanks,  
Jody

-----Original Message-----

From: [REDACTED]  
Sent: Thursday, June 09, 2011 11:35 AM  
To: [REDACTED] Farhat, Jody S NWD02; Johnston, Paul T HQ@ NWO  
Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody, I have another one to respond to. Homeowner on Frontier Road is questioning the early frequent changes in the release schedule. Saying there was no way to plan due to the Corps always changing schedule during the first week. The TV reporter that interview him wants to hear our side of that issue.

This reporter has been doing very good coverage for the Corps. It is also a response that needs to get out as it is one of the biggest concerns from the locals.

You have got to have a talking point on this that I can utilize for our actions. Don't want to dig and find it. Could you please send or have someone send the talking point for me to utilize.

-----Original Message-----

From: [REDACTED]

Sent: Thursday, June 09, 2011 11:11 AM

To: Farhat, Jody S NWD02

Cc: [REDACTED]

Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Jody,

This and other similar ones will keep coming, I'm sure. We will need to think about having someone full time to answer these. Believe these should funnel thru you. Agree?

-----Original Message-----

From: [REDACTED]

Sent: Thursday, June 09, 2011 11:03 AM

To: [REDACTED], Farhat, Jody S NWD02; Farmer, Monique L NWO

Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Forwarding this for guidance. In a quick discussion with Tim F. prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

-----Original Message-----

From: Tim.Flannery@state.sd.us [mailto:Tim.Flannery@state.sd.us]

Sent: Tuesday, June 07, 2011 11:37 AM

To: [REDACTED]

Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** Collins, Kimberly K NWO  
**Sent:** Thursday, June 09, 2011 3:37 PM  
**To:** Ruch, Robert J COL NWO  
**Cc:** Bertino, John J Jr NWO; [REDACTED]; Thomas, Kimberly S NWO; [REDACTED]; [REDACTED]; Farhat, Jody S NWD02; [REDACTED]; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Blechinger, Erik T NWO  
**Subject:** RE: OPPD and Fort Calhoun (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

The meeting has been set for Tues, 21 June at 1500. Gary Gates, CEO of OPPD and Dave Bannister, Chief of Nuclear Office will attend. Tim Burke, VP of Public Affairs will not be able to attend.

Kim

-----Original Message-----

From: Blechinger, Erik T NWO  
Sent: Wednesday, June 08, 2011 9:41 AM  
To: Ruch, Robert J COL NWO  
Cc: Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]; Thomas, Kimberly S NWO; [REDACTED]; Farhat, Jody S NWD02; [REDACTED]; Tipton, Robert A Col NWD; Anderson, G Witt NWD  
Subject: OPPD and Fort Calhoun

Sir;

Got a call from Tim Burke, VP of Public Affairs for OPPD. He would like to schedule a meeting between himself, the CEO of OPPD and the Chief of their Nuclear Office with our staff to discuss the releases and impacts to power generation through-out the summer. Specifically asked to do it after we reach our release high of 150k and wants to target the week of 20 June. My recommendation for USACE attendance would be you, Bertino, [REDACTED], Thomas, Farhat and me. They will come down here. If you are good with this, I would recommend [REDACTED] work with their scheduler to establish the date and then I will work agenda and outcomes directly with Tim.

[REDACTED]

Scheduler is Carolyn Mclean at (402) 636-3202.

Erik

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 3:23 PM  
**To:** [REDACTED] Farhat, Jody S NWD02  
**Cc:** Bertino, John J Jr NWO; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** Dam Safety Talking Points (UNCLASSIFIED)  
**Attachments:** damsafetytps.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks [REDACTED] Would very much appreciate a quick review by you and Jody of these proposed talking points I drew out of the info you sent me and our conversation yesterday. Thanks for your time -- it was great meeting you.

By the way, we do have a query in today from the Kansas Water Office (Nathan Westrup) asking these very questions, so I'd like to get back to him today.

Thanks! [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Wednesday, June 08, 2011 3:41 PM  
**To:** [REDACTED]  
**Subject:** St Louis Dispatch Article.docx

Per your request - I cut and pasted a small section about the dam safety program on this sheet as well.

Also - John Bertino is the District's Dam Safety Officer (DSO). In case you are not aware, John's has a lot of background with the dam safety program and I would suggest that he remain the Primary POC with Dam questions. I am sure he can defer myself or Steve Butler for the latest up to date info, or when he is too busy.

Classification: UNCLASSIFIED  
Caveats: NONE

## **Dam Safety Talking Points**

We have a vigilant dam safety program. Our dams are routinely inspected and maintained on rigid schedules and are well-prepared to handle the floodwaters. This is what they were designed to do. Our dams are structurally sound and are not experiencing any signs that would indicate potential failure.

Our dams are equipped with instruments that allow us to identify potential seismic or seepage issues if and when they develop. When our reservoir water levels are high, we become even more proactive and increase our surveillance of these instruments.

Our dams are routinely inspected on an annual basis and undergo an even more rigorous evaluation every five years. Our dams are evaluated for safety in accordance with the Federal Guidelines for Dam Safety originally issued in 1979 and revised in 2005.

This is uncharted territory for releases; however, our reservoirs have been at these levels before.

There is no risk of our dams being overtopped. However, the water is in our exclusive flood control zone and close to overtopping our spillway gates. The spillway gates are lower than the top of the dam and are not designed to have water flowing over the top. If this happens, we run the risk of losing our ability to regulate the flows. Therefore we need to release the water to get the level below our exclusive flood control zone.

### **Answers to frequently asked Dam Safety Questions:**

I heard that earthen dams are likely to fail due to liquefaction?

**Answer:** There is no potential for liquefaction to occur at our dams. Our dams underwent a rigorous study in the 1970s and in 2005. Both studies definitively concluded our dams are not a risk for liquefaction.

What is involved with your dam safety program?

**Answer:** The Omaha District dam safety monitoring process consists of the following:

- Daily and monthly inspections by project personnel.
- Instrumentation data collection and interpretation.
- Annual Inspections performed by project and district dam safety personnel.
- Periodic Inspections performed every five years. Periodic Inspections include a thorough review of all components of the project and are attended by project personnel, technical staff from various disciplines within the Omaha District, Division technical experts, and government officials from outside the Corps of Engineers.
- Special Inspections are also performed for high water conditions, seismic events, and other unusual conditions.
- The Omaha District assesses each dam's safety with regard to other issues such as operational modifications to the project and adequacy of hydraulic steel structures.



[REDACTED]

**From:** Jordano, James J LTC NWO  
**Sent:** Thursday, June 09, 2011 3:06 PM  
**To:** McMahon, John R BG NWD  
**Cc:** Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Miles, Steven R COL NWP; Wright, Anthony COL NWS; Hofmann, Anthony J COL NWK; Caldwell, David A LTC NWW; [REDACTED] Jordano, James J LTC NWO; Hains, Decker B LTC NWW; Acheson, William E LTC NWS; Capps, Stephan A LTC NWP; Evers, Jason A MAJ NWK; Blechinger, Erik T NWO [REDACTED]  
[REDACTED]  
[REDACTED] Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] Blechinger, Erik T NWO

**Subject:** Omaha District WSAR-Week Ending 10 June 2011  
**Attachments:** Weekly Locator 5-11 Jun 11.pptx

Week Ending 10 June 2011

BG McMahon

Sir - Due to heavy rains and subsequent high inflows at Fort Peck, releases will be increased there from 50,000 cfs to 55,000 cfs today and 60,000 cfs on Friday. Inflows doubled between Tuesday and Wednesday and are expected to remain well above previously forecasted levels for the next 6 to 8 days. This increase is not expected to impact the planned peak releases at the other five dams. The increase at Fort Peck was necessary to better balance the flood control storage between Fort Peck and Garrison.

Also, the local sponsor has completed repairs to the partial breaches of levee 575 near Hamburg, IA. Construction of the Ditch 6 levee raise is underway and roughly 25% complete on segment 1 of 3 separate segments. This work being done via SDIC task order issued to Weston NTE \$2.5M. Two pumps (16" and 12") will also be employed to assist with interior drainage. A meeting was held with the City to review the closure requirements required to complete the mitigation effort.

1. Top Three Issues:

1a. LEED Gold Certification of FE Warren, AFB, Cheyenne, WY Dorm 236 Renovation: This is a great accomplishment for our in-house designers. Renovations are typically tough projects. Renovations of historic buildings are even tougher. Achieving LEED Gold requirements is a significant accomplishment. This project featured in-house design effort for the renovation of a 1908 historic brick structure while meeting the new Air Force dorm standards. A strong focus on energy efficiency in the facility resulted in more than 50% energy savings over the ASHRAE 90.1 baseline.

1b. FY11 MILCON Program Update: Nine projects in President's Budget (\$171M) & One ARRA MILCON (\$39M), One ECIP (\$1.95M):

\* Contracts Awarded (first four are the Air Force MCAF):

- 1 June: Security Forces Operation Facility, Buckley AFB (\$12.8M)
- 2 June: Nuclear & Space Security Tactics Training Center, Camp Guernsey, Wyoming (\$4.9M).

- 6 June: Control Tower/Base Operations, Minot AFB (\$18.7M) Congressional notification issued 1 June.
- 8 June: RAIDRS Space Control Facility, Peterson AFB (\$24.8M).
- 19 May: EAB Complex (\$56M). TEMF Facility (\$8.9M); Fort Carson.
- 19 May for EAB Complex - Company Operations Facility (\$14.5M); Fort Carson award in May.
- 24 May for EAB Complex - Group Headquarters (\$6M); upon receipt of funding and directive Fort Carson.
- 19 May for EAB Complex - Brigade HQ Battalion (\$20.3 M) award in May upon receipt of funding and directive.

\* Contract Award Imminent:

- 10 June: EAB Complex; Battalion HQ (\$6.3M) Congressional Notification of Award issued 7 June.

\* Contract Award Pending:

- 15 June: Battalion HQ with Classrooms, Fort Carson (\$6.7M) Congressional Notification Issued 9 June.
- 14 June: Automated Sniper Training Field Fire, Fort Carson, (\$3.65M) Small Business MATOC. Funds in District.

\* Awaiting Contractor Proposal: ECIP Expand EMCS (\$1.95M) Anticipate award 27 June. Received code 4 on 100kw Photovoltaic - project no longer in CENWO baseline.

1c. Immediate Response Debris Mission Assignment for Tornado Recovery Support to Joplin, Missouri Cleanup efforts; Joplin, Missouri. As of 8 June, Omaha approved additional PDT members and reserved \$70M of SDIC contract capacity for debris removal activities. On 4 Jun, Omaha awarded a contract modification to Weston for \$11.5M to continue work in support of KC Joplin-RFO. Total debris contract awards: \$14.2M.

2. ARRA Status: N/A.

3. NWD Staff Action Requirements: None.

4. Looking Ahead:

- \* 22-23 June 2011 - Scott AFB Site Visit, IL.
- \* 23 June 2011 - NWD CIP Review.
- \* 27-28 June - RMB/RASB, Portland, OR.
- \* 29 June 2011 - RCC, Portland, OR.
- \* 30 June 2011 - Portland District Change of Command Portland, OR.
- \* 15 July 2011 - NWD CIP Review.
- \* 26 - 28 July 2011 - MRRIC, Great Falls, MT.
- \* 28 July 2011 - NWD Quarterly PRB.
- \* 29 July 2011 - Seattle District Change of Command.
- \* 2-3 August 2011 - Commander's Off-Site, Nebraska City.
- \* 11 August 2011 - MRBIR, Denver, CO.

5. Support to OCO:

- \* 19 District personnel currently deployed to TAN/TAS.
- \* 9 Currently deployed Other Operations, Japan/Germany/Hawaii/ India.
- \* 70 Currently deployed CONUS Disaster Response, MO, NE, SD, ND, IA, KS, WY and MT.
- \* 3 District employees, Reservists/National Guard - Currently Activated.
- \* 11 District employees scheduled for OCO deployment or new tasker.
- \* 7 Schedule A's not counting in our percentage below.
- \* 2 District employees filling/scheduled to fill NWD/USACE-Essential matrix positions.
- \* 101 Total employees deployed from the district 9.72%.
- \* 19 Deployed to TAN/TAS divided by 1,039 FTE = 1.83% deployed.

6. Support to Hurricane Relief Efforts: None.

7. Response and Recovery Operations:

\* Primary Roofing PRT - GREEN.

\* Alternate Roofing PRT - GREEN.

Very Respectfully,

-----  
LTC James J. Jordano, P.E.

Deputy Commander

Omaha District, USACE

Office: 402-995-2002

BB: 402-350-3747

james.j.jordano@usace.army.mil

[REDACTED]

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 2:40 PM  
**To:** [REDACTED] NWD02; Farhat, Jody S NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Are our river travel times significantly affected by the higher velocities we're seeing with the increased flows? I'm getting quite a few questions about travel times when we make changes in our releases...

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Saturday, May 14, 2011 2:16 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWO  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Do you have the one from the current manual? I've attached one that is intended for the updated manual. The graphics need to be cleaned up, but I think you can read it. It probably still needs some verification.

The chart shows the leading edge of the change. For example, it shows Bismarck at about 30 hours. The time to peak and stabilize is somewhat dependant on the magnitude of the increase/decrease and whether there's any peaking, etc. As a rule of thumb, I would use something closer to 2 days for it to stabilize at Bismarck.

[REDACTED]

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, May 14, 2011 11:18 AM  
**To:** [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't recall either, but I suspect that Mike can answer the question. I know he has looked at the travel time chart and made a few adjustments.

Jody

-----Original Message-----


**From:** [REDACTED] NWO  
**Sent:** Saturday, May 14, 2011 11:09 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Jody,

Do we have an updated chart for river travel times below Garrison? I have an old one and when discussing it with the NWS, they asked if the chart shows the time for the leading edge of our changes or the time that it would take to peak and stabilize? I did not know, do you?

  
Operations Project Manager  
Garrison Project


Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO



---

**From:** Quinn, Kevin R NWO  
**Sent:** Thursday, June 09, 2011 2:40 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** (UNCLASSIFIED)  
**Attachments:** RUCH OP-ED Article 6-8-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

JODY--please review and revise the first paragraph. You can word it anyway way you think best.

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** Blair, Amy E NWK  
**Sent:** Thursday, June 09, 2011 2:32 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** RE: SEnator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Wonderful. Thanks for the quick response.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 2:31 PM  
**To:** Blair, Amy E NWK  
**Cc:** [REDACTED] NWD02  
**Subject:** RE: SEnator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Amy - we're still working out the details, and it may require a deviation to the Master Manual, but our current thinking is to evacuate enough water while we're at these high flows to allow us to have near normal flows in the fall, say Sept through Nov. This would allow folks time this fall to assess damage and make need repairs prior to winter so we're ready for the next year's flood season.

At this time we don't have an exact schedule or release rate, but in our discussions with district staff, we're thinking of shooting for releases in the 40,000 to 45,000 cfs range.

If we strictly followed the Master Manual, we would probably have releases in the range of 70,000 to 80,000 cfs which would inhibit any repairs to levees and other infrastructure until early December.

Once the system storage peaks and we're on our way back down, we'll have a much better idea what our options are, and of course we would be interested in hearing what folks think.

Jody

-----Original Message-----

**From:** Blair, Amy E NWK  
**Sent:** Thursday, June 09, 2011 2:19 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** SEnator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hi, Jody

I received a few questions from Senator Blunt's office today. Could you please answer the following?

While we understand that the top line rate of storage evacuation may last well into August, when it is ratcheted down, can we, ROUGHLY, expect it be be ratcheted down by one-quarter, one-half? Point of question is that even after mid-August, the reduced evacuation rates will still be very high or no?

Amy E. Blair  
Outreach Specialist  
Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>  
Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
<<http://www.youtube.com/moriverrecovery>>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** Blair, Amy E NWK  
**Sent:** Thursday, June 09, 2011 2:19 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** Senator Blunt Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hi, Jody

I received a few questions from Senator Blunt's office today. Could you please answer the following?

While we understand that the top line rate of storage evacuation may last well into August, when it is ratcheted down, can we, ROUGHLY, expect it be be ratcheted down by one-quarter, one-half? Point of question is that even after mid-August, the reduced evacuation rates will still be very high or no?

Amy E. Blair  
Outreach Specialist  
Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>  
Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
<<http://www.youtube.com/moriverrecovery>>

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 09, 2011 1:57 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD  
**Subject:** RE: noon call with HQ (UNCLASSIFIED)

Thanks Jody.

We got a note from Liz this morning basically saying they want us to "tell the story" on this call.

I am a little taken back by this comment since I feel like this is exactly what we have been doing. Unfortunately, a lot of times, there is just "not much to say," and so I say that, and they don't like it..Maybe just having you tell the story a little about the latest releases will make them feel better..

They are all over the board with this, because at the same time they say this, they also say they are extremely happy with communication flow etc...

Guess we'll see in a minute

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil  
[REDACTED]@usace.army.smil.mil  
Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:51 AM  
**To:** [REDACTED] NWD  
**Subject:** RE: noon call with HQ (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I'll be on.

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 09, 2011 1:25 PM  
To: Farhat, Jody S NWD02  
Subject: noon call with HQ

Jody,

Do you have time to sit in on the noon pacific time conference call with HQ? I would like to be able to have you update briefly on the release changes at Ft Peck/general update....

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil  
[REDACTED]@usace.army.smil.mil  
Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 1:57 PM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR; Farhat, Jody S  
NWD02; [REDACTED] / HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED]  
[REDACTED] HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED] MVM  
**Cc:** [REDACTED] NWO; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED]  
NWD02; [REDACTED] NWD02; [REDACTED] NWD-OMAHA; Jensen, Kathleen A  
NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] RMC; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED]  
E MVD; DLL-CELRD-RBW; [REDACTED]@msn.com; [REDACTED] MAJ HQ02; [REDACTED]  
[REDACTED] HQ; [REDACTED] M SAW  
**Subject:** Missouri River Basin Water Management Division Situation Report of 6-9-11  
(UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-9-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] Eileen,

Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]

[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-9-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Note the larger inflows for Fort Peck Reservoir due to the heavy rainfall the previous 2 days before in Montana. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at:

<http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/9/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	79.0	50.7	2250	2251.1	0.2
Garrison	115.0	130.8	1854	1853.2	-0.2
Oahe	132.0	150.7	1620	1618.9	-0.2
Big Bend	148.0	148.4	1423	1419.3	-0.4
Fort Randall	155.0	137.0	1375	1361.3	0.5
Gavins Point	141.0	135.6	1210	1207.2	0.4

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). Also, less of the exclusive flood control storage is being used at Garrison and Oahe. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use Oahe spillway at this time. Because the spillway gates are open at Fort Peck, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.



**Table 2. Reservoir Storage Data (through 0000 hrs 6/9/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	18,739	18,463	-276	971	-28
Garrison	23,506	23,821	315	1,489	21
Oahe	22,734	23,137	403	1,102	37
Big Bend	1,603	1,798	195	60	100
Fort Randall	4,089	5,418	1,329	985	100
Gavins Point	372	450	78	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out are now just under the currently anticipated maximum releases at only Garrison Reservoir. Also note that the anticipated maximum for Fort Peck Reservoir increased from 50 to 55 kcfs. Also note that the anticipated maximum release is now 60 kcfs at Fort Peck with more rainfall anticipated in the next 5 days above this reservoir. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/9/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 16 June kcfs	14 days out 23 June kcfs	Pre-2011 Record kcfs
Fort Peck	50.7	55.0	60	60	35
Garrison	130.8	130.0	145	150	65
Oahe	150.7	150.0	150	150	59
Big Bend	148.4	150.0	150	150	74
Fort Randall	137.0	140.0	148	148	67
Gavins Point	135.6	140.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

**Table 4. Missouri River Stage Data for 6/9/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.5	20-21	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	32.8	35-37	mid-Jun thru July
Decatur, NE	35	36.3	40-42	mid-Jun thru July
Omaha, NE	29	30.4	34-36	mid-Jun thru July
Nebraska City, NE	18	23.4	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.2	27-32	mid-Jun thru July
Kansas City, MO	32	26.4	30-39	mid-Jun thru July
Waverly, MO	20	24.9	27-31	mid-Jun thru July
Boonville, MO	21	22.7	27-33	mid-Jun thru July
Hermann, MO	21	23.0	27-33	mid-Jun thru July

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in Montana, North Dakota, and South Dakota and in a large area of the lower basin. Figure 1 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 2 is yesterday's mountain snowpack update by the Corps.

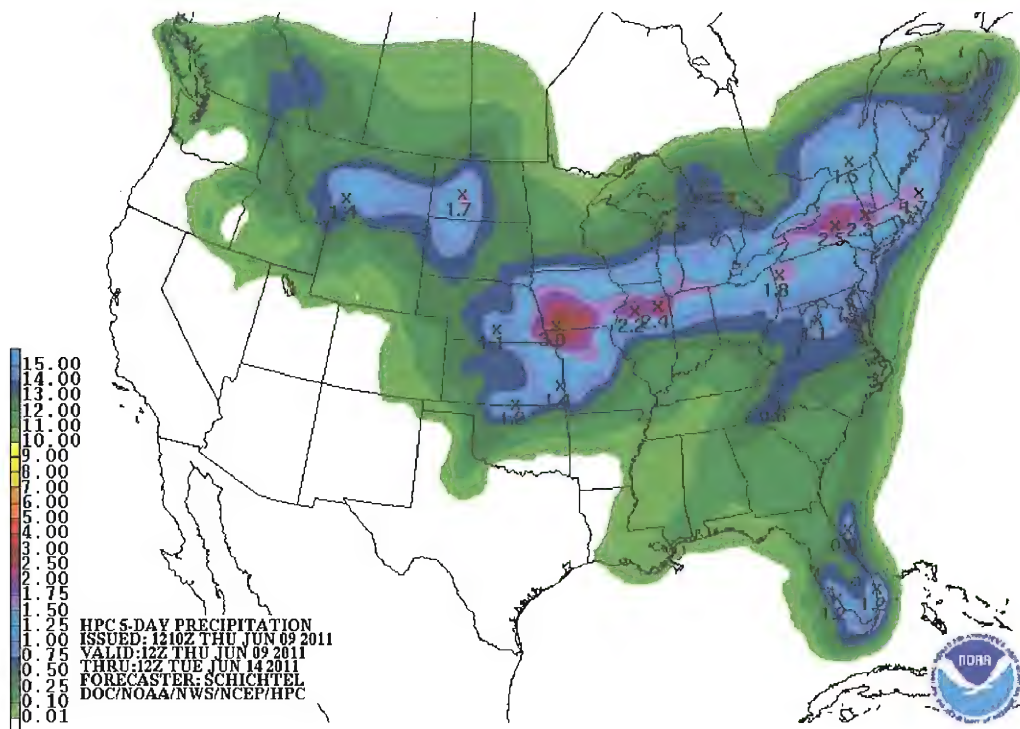
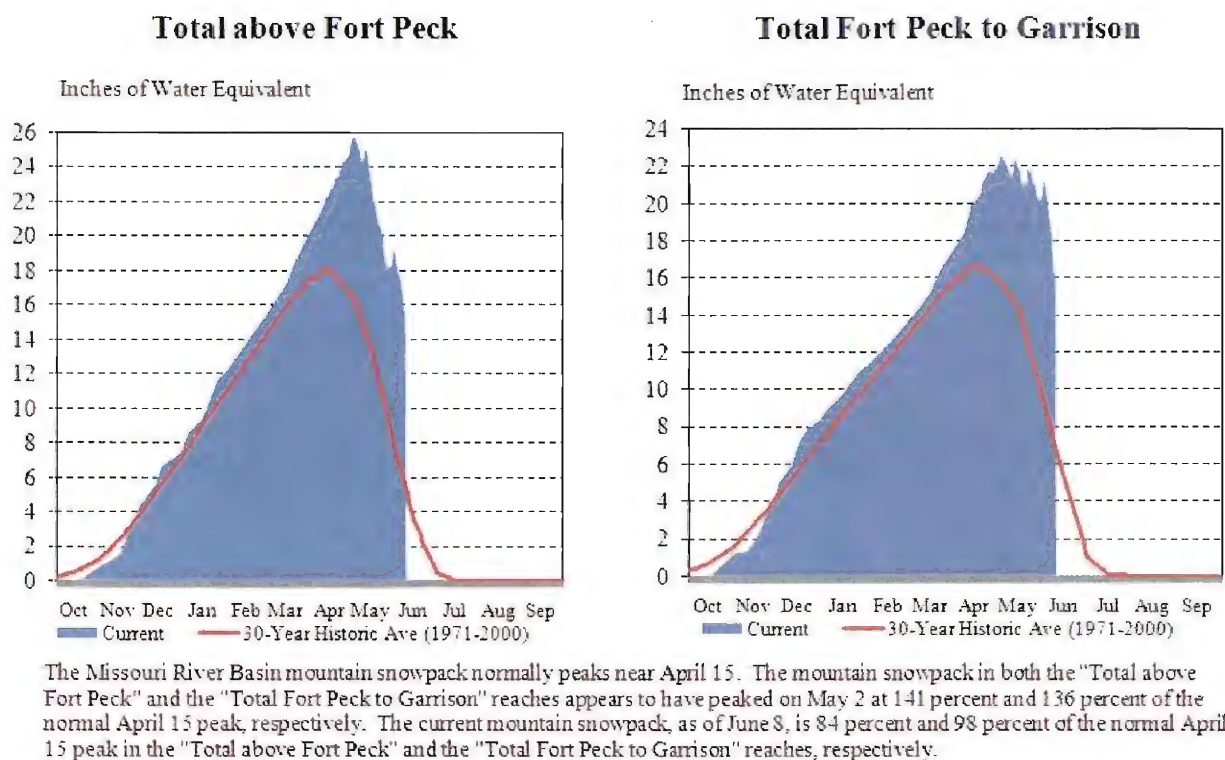


Figure 1. 5-day total QPF ending 0700 Tuesday, June 14, 2011.



June 8, 2011

Provisional data. Subject to revision.

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 8, 2011.

### Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood.

Figure 3 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 11 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week show a rise to 25.5 feet by next Monday, June 13, and potentially 27 feet by Thursday, June 16.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.

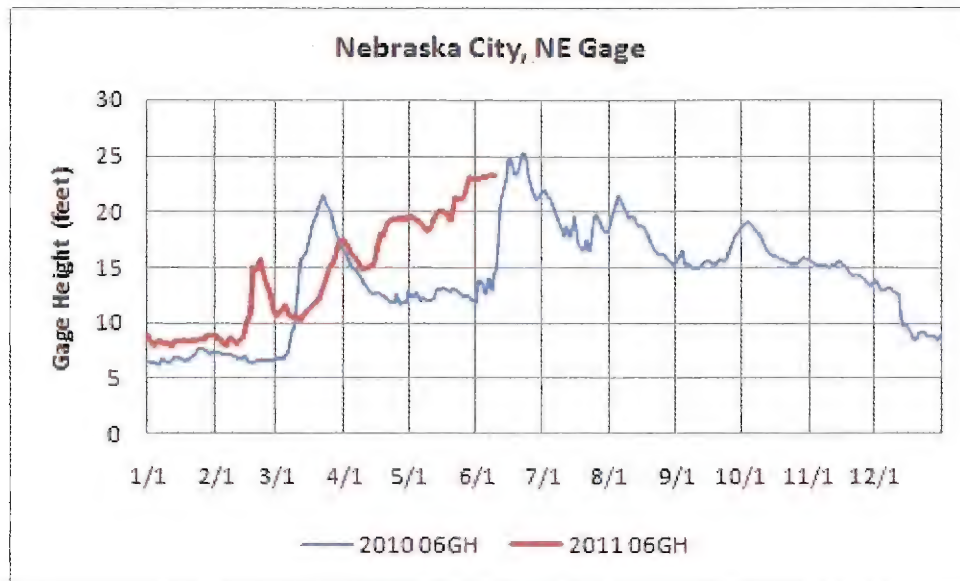


Figure 3. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains fell for the third day in a row in Montana on ground that is likely still saturated from heavy rains the previous 2 to 3 weeks. Figure 4 shows the amount of rain that fell, most of it near the mountains. There are some isolated spots over 2 inches with major areas of rain over half an inch.

Montana: Current 1-Day Observed Precipitation  
Valid at 6/9/2011 1200 UTC- Created 6/9/11 17:40 UTC

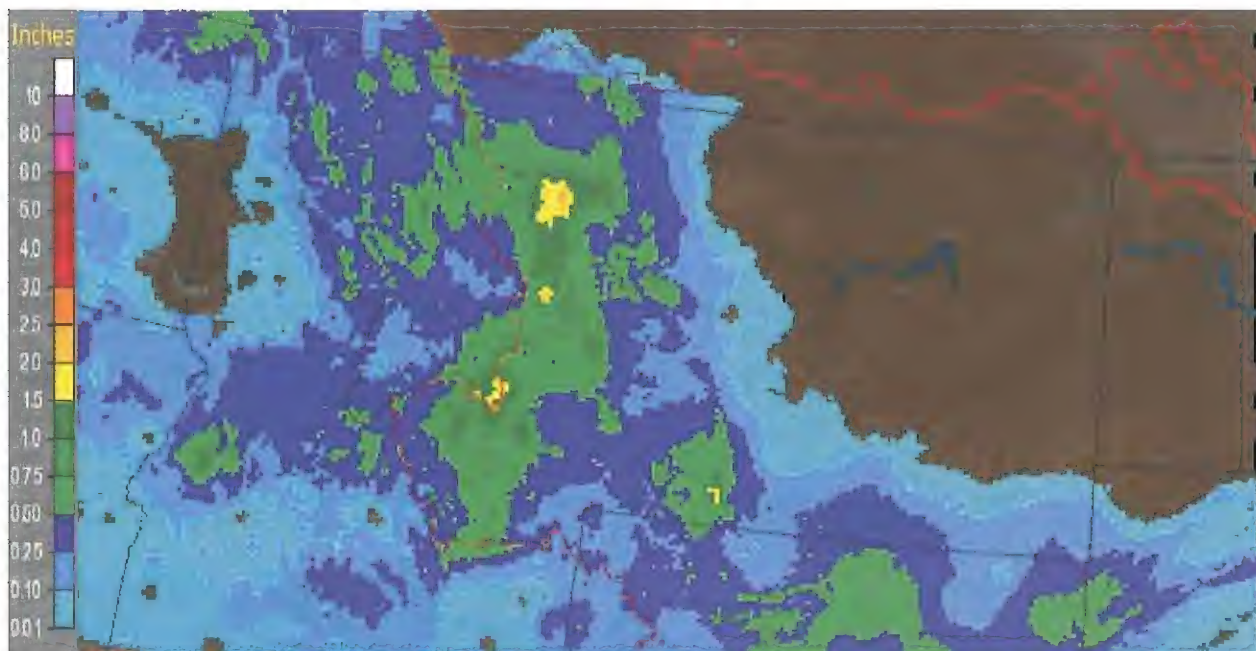


Figure 4. Rainfall on Montana for June 8, 2011.



[REDACTED] NWO

From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 1:52 PM  
To: [REDACTED] NWD; [REDACTED] NWD02; Farhat, Jody S NWD02 [REDACTED]  
[REDACTED] NWD02  
Subject: FW: Coast Guard Number to Operate Vessel in Closed River Reaches (UNCLASSIFIED)

FYI, in case you hear of an agency request for river access.

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 12:39 PM  
To: DLL-CECW-CE-HHC-NWO  
Subject: FW: Coast Guard Number to Operate Vessel in Closed River Reaches (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

This is primarily for the WQ and Sed field crews.

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 09, 2011 8:27 AM  
To: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
Subject: Coast Guard Number to Operate Vessel in Closed River Reaches (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Number as requested

Please contact [REDACTED] at [REDACTED]@uscg.mil and/or his phone at [REDACTED]

The CG will then notify the Local authorities who are enforcing the closure rule.

[REDACTED]  
-----Original Message-----

From: [REDACTED]@uscg.mil [mailto:[REDACTED]@uscg.mil]  
Sent: Tuesday, June 07, 2011 5:24 PM  
To: [REDACTED] NWD  
Cc: [REDACTED] MSSE2; [REDACTED] USCG; [REDACTED] NWO;  
[REDACTED] MST1; [REDACTED] NWO; [REDACTED] NWO; [REDACTED];  
[REDACTED] LCDR  
Subject: RE: Big Sioux and Missouri River Closure (UNCLASSIFIED)

As discussed on the call, it's not a problem if your crews need to access the river as described below. However, please contact us and let us know when and where your vessels will be transiting prior to launching so we can notify the states and ensure they are fully aware.

Please contact MST1 Shannon McGregor at Shannon.L.McGregor@uscg.mil and/or his phone at 314-269-2507.

Please let me know if you have any questions.

Thanks,

[REDACTED]  
[REDACTED]  
Chief, Prevention Department  
U.S. Coast Guard Sector Upper Mississippi River  
1222 Spruce Street, Suite 7-103  
St. Louis, MO 63103  
[REDACTED]

-----Original Message-----

From: [REDACTED]@usace.army.mil [mailto:[REDACTED]@usace.army.mil]  
Sent: Tuesday, June 07, 2011 3:49 PM  
To: [REDACTED] CDR  
Cc: Brown, Ancil A MSSE2; [REDACTED]; Coder, Justin BOSN2; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO  
Subject: RE: Big Sioux and Missouri River Closure (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
The Omaha District river engineers have asked me if a waiver, permission, or limited access is possible for the Corps to place a vessel in the closed reach of the river for the following purpose:

We are anticipating the need for river access to collect water surface elevation data, spot bathymetric surveys, and assess project performance.

We understand that there are both safety concerns and impacts associated with boat wake. We are interested in Coast Guard issues or related guidance.

We can have the staff asking the question available to meet with Captain Hudson when he arrives our office tomorrow (about 10:30am) to discuss the details of this request.

[REDACTED]  
-----Original Message-----

From: [REDACTED]@uscg.mil [mailto:[REDACTED]@uscg.mil]  
Sent: Tuesday, June 07, 2011 3:33 PM  
To: [REDACTED] NWD

Cc: [REDACTED] MSSE2  
Subject: FW: Big Sioux and Missouri River Closure

<<About WinZip Compressed Attachments.txt>> John,

Just wanted to let you know this was being released by our District public affairs. The attached pics are not part of the release, just provided to our District for reference.

Thanks  
[REDACTED]

[REDACTED]  
Chief, Prevention Department  
U.S. Coast Guard Sector Upper Mississippi River  
1222 Spruce Street, Suite 7-103  
St. Louis, MO 63103  
[REDACTED]

-----Original Message-----

From: [REDACTED] MSSE2  
Sent: Tuesday, June 07, 2011 2:36 PM  
To: [REDACTED] PA3  
Cc: [REDACTED] CAPT; Teschendorf, Steven C; [REDACTED] CDR; [REDACTED] LCDR;  
[REDACTED] LCDR  
Subject: Big Sioux and Missouri River Closure

D8 PA Staff,

Could you please include this picture with the recent river closure. I think these pictures will help out a lot.

ST LOUIS- In response to a request from the South Dakota Governor and consultation with the State of Iowa, the U.S. Coast Guard has issued a river closure for a portion of the Big Sioux River. This closure is for all vessel traffic between the Missouri River confluence and to Military Rd Bridge in North Sioux City, South Dakota.

The Missouri River is now closed to all vessel traffic between Mile Marker 550, where the state lines meet of Nebraska, Iowa and Missouri to Mile Marker 811, Gaven's Point Dam in Yankton, South Dakota.

Please monitor Marine Band Channel 16 and 22 for any changes in broadcasts that might occur.

"As a responsible boater if you decide to go boating outside of these areas, it is highly recommended to file a float plan with a reliable source on land and to always wear a personal flotation device (PFD)." said Captain Steve Hudson commanding officer of Sector Upper Mississippi River.

[http://www.uscgboating.org/safety/float\\_planning.aspx](http://www.uscgboating.org/safety/float_planning.aspx)  
USCG Float Plan form,  
<http://www.floatplancentral.org/download/USCGFloatPlan.pdf>

v/r,  
[REDACTED], MSSE2

Sector Upper Mississippi river  
1222 Spruce St  
Suite 7.103  
Saint Louis, MO 63103

W- [REDACTED]

C- [REDACTED]

F- [REDACTED]

<http://marineinvestigations.us/>

<http://www.americaswaterwaywatch.us/>

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED] NWO

---

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 09, 2011 1:36 PM  
**To:** [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED]  
NWP; Farhat, Jody S NWD02; [REDACTED] NWS; [REDACTED] NWD02;  
[REDACTED] NWW; [REDACTED] NWW; [REDACTED] NWW; [REDACTED]  
NWK; [REDACTED] NWO; [REDACTED] NWW; [REDACTED] A NWD02; [REDACTED],  
[REDACTED] NWK  
**Subject:** presentation on Mississippi flood event of 2011

All,

Ronnie Heath gave the linked presentation during our Coastal Working Group call today. Very interesting! Perhaps the Missouri Basin folks can have a look when they can catch their breath.

[REDACTED]

[https://kme.usace.army.mil/CoPs/OR/Navigation/CWG/Monthly%20Calls/June%2009,%202011/MR%20and%20T ver5 Brief.pdf](https://kme.usace.army.mil/CoPs/OR/Navigation/CWG/Monthly%20Calls/June%2009,%202011/MR%20and%20T%20ver5%20Brief.pdf)

[REDACTED] NWO

---

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 09, 2011 1:25 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** noon call with HQ

Jody,

Do you have time to sit in on the noon pacific time conference call with HQ? I would like to be able to have you update briefly on the release changes at Ft Peck/general update....

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]

[REDACTED]@usace.army.mil

[REDACTED]@usace.army.smil.mil

Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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[REDACTED] NWO

From: [REDACTED] NWK  
Sent: Thursday, June 09, 2011 12:39 PM  
To: Farhat, Jody S NWD02  
Subject: FW: FAX from CODEL (UNCLASSIFIED)  
Attachments: document2011-06-07-151448.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

As discussed

Respectfully,

[REDACTED]  
Deputy District Engineer for Project Management Chief, Planning, Programs and Project  
Management Division US Army Corps of Engineers, Kansas City District

(W) [REDACTED]

(C) [REDACTED]

-----Original Message-----

From: [REDACTED] NWD  
Sent: Wednesday, June 08, 2011 10:02 AM  
To: Evers, Jason A MAJ NWK  
Cc: [REDACTED] NWK  
Subject: FW: FAX from CODEL (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

MAJ Evers,

I just got Larry's out of office message. Since I will be out of the office next week until Wednesday, I'd like to start working this today. Do you have any issues/concerns with that, or is there someone else from NWK that can handle this in Larry's absence?

[REDACTED]  
Executive Assistant  
Northwestern Division  
U.S. Army Corps of Engineers

-----Original Message-----

From: [REDACTED] NWD  
Sent: Wednesday, June 08, 2011 7:43 AM  
To: [REDACTED] NWK  
Cc: [REDACTED] NWD; Hofmann, Anthony J COL NWK  
Subject: FW: FAX from CODEL (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Please call when you get a chance so we can discuss this. Looking at BG McMahon's calendar, it looks like he could do this either 22 or 23 Jun (along with Witt) or on 6 Jul (without [REDACTED]). I think that 6 Jul may be too late, since the releases will be heading down there starting next week, so 22 or 23 Jun would probably be ideal. But, we need to figure out how to get this scheduled, with so many players involved.

[REDACTED]

Executive Assistant  
Northwestern Division  
U.S. Army Corps of Engineers

[REDACTED]

-----Original Message-----

From: [REDACTED] NWD  
Sent: Tuesday, June 07, 2011 3:18 PM  
To: McMahon, John R BG NWD  
Cc: [REDACTED] NWD; Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Tipton, Robert A Col NWD; [REDACTED] NWK; [REDACTED] NWO; Blechinger, Erik T NWO  
Subject: FAX from CODEL (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

BG McMahon,

You received the attached FAX today. Thought you should probably see this as soon as possible.

[REDACTED]

Executive Assistant  
Northwestern Division  
U.S. Army Corps of Engineers

[REDACTED] B

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

SAM GRAVES  
6TH DISTRICT, MISSOURI

113 BLUE JAY DRIVE, SUITE 100  
LIBERTY, MO 64068  
(816) 782-2978

1415 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-7041

201 SOUTH 5TH STREET, ROOM 220  
ST. JOSEPH, MO 64501  
(816) 233-8218

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-2506

**Congressman Sam Graves**

Representing the People of the Sixth District of Missouri

PHONE: (816) 792-3976 FAX: (816) 792-0694

To: Brig Gen. John McMahon

Fax Number: 503-808-3706

- ☐ Congressman Graves  
☒ Liberty Office  
☐ Washington, D.C. Office  
☐ St. Joseph Office

From:

- ☐ Tom Brown  
☐ Melissa Roe  
☐ Alicia Endicott  
☐ Buffy Smith  
☐ Jason Klindt  
☐ Shawna Searcy  
☐ Sarah Woodward  
☐ Angela Kreps  
☐ Josh Hurlbert

Date: 6.7.11 Number of Pages: 3

Comments: \_\_\_\_\_

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**Congress of the United States**  
**Washington, DC 20515**

June 7, 2011

Dear General McMahon:

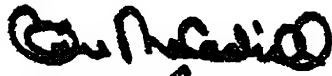
Throughout the 19<sup>th</sup> and early 20<sup>th</sup> centuries, flooding along the Missouri River vexed residents and caused millions of dollars in damages. To respond to this threat, Congress passed the Flood Control Act of 1944, authorizing the Army Corps of Engineers to construct five dams on the Missouri River. This reservoir system, as envisioned by General Lewis A. Pike of the Corps of Engineers, would serve to protect those communities along the Missouri River from the floodwaters that constantly buffeted the region.

As you know, the increase in flows from the upper Missouri River reservoir system will likely push flood levels along the Missouri River past last year's flood levels. We feel that this disaster will again adversely affect hardworking Kansans and Missourians who have increasingly borne the brunt of the flooding in the Missouri River Basin over the past five years.

We would like to invite you to tour the areas in Kansas and Missouri expected to flood again. Despite heavy rainfall and snow melt, many of our constituents believe this disaster could have been mitigated with better planning and coordination on the part of the Corps of Engineers. Visiting these communities will allow the Corps the opportunity to fully present the rationale behind its flood control decision making process to the Kansans and Missourians directly affected by it. Additionally, we believe these conversations will allow you to gain an appreciation for the near-annual battering these communities receive from floodwaters in the Missouri River Basin.

We hope your schedule will permit your attendance. Please feel free to contact any of our offices when you are able to visit these areas or with any questions you may have.

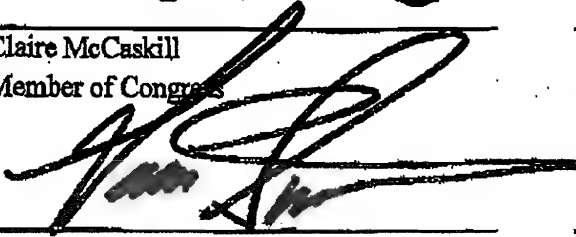
Sincerely,



Claire McCaskill  
Member of Congress



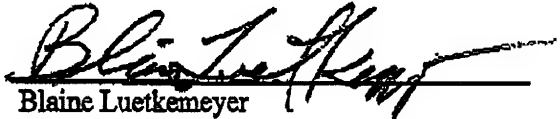
Roy Blunt  
Member of Congress



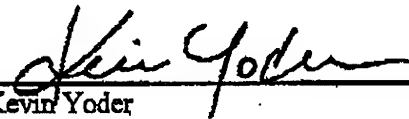
Sam Graves  
Member of Congress



Lynn Jenkins  
Member of Congress



Blaine Luetkemeyer  
Member of Congress



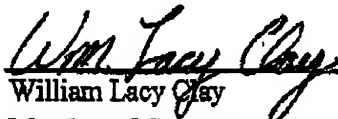
Kevin Yoder  
Member of Congress



Todd Akin  
Member of Congress



Emanuel Cleaver  
Member of Congress



William Lacy Clay  
Member of Congress



Vicky Hartzler  
Member of Congress

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 12:25 PM  
**To:** Farhat, Jody S NWD02; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sorry wrong phone number. 605-373-7361 Jamie Stubbe

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 12:22 PM  
**To:** [REDACTED] NWO; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monique - can you make contact with the reported and set up a time for an interview. The Omaha District CMT got moved, so I'm available until 3:00.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 12:18 PM  
**To:** Farhat, Jody S NWD02; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

This KSFY TV out of Sioux Falls. Contact Person is Jamie Stubbe 605-785-0813.

The reporter on site stated that the homeowner used some pretty strong words and feels that without some type of Corps response, a strong negative report will be heard by the viewers. I agree with this assessment.

They would at least like to try for a phone interview with our SME. They are requesting a call by 1500hrs to confirm if such an interview could be set up.

There was one other question that I already answered. That was the homeowner stated that Corps told him what elevation to flood proof his home to. He was part of the SE Pierre Buyout. I related that the elevation that was required was the FUTURE 100yr flood elevation plus 1 foot. I further related that this flood was beyond that event but would not know the actual return frequency until a later date when everything could be analyzed.



I feel this is a very important issue to address with the local news. It is foremost in the public's concern with the recent operation of the reservoirs. Not to take advantage of the opportunity to tell our side of the story would be most unfortunate.

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 09, 2011 11:50 AM

To: [REDACTED] NWO; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO

Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] - it would be best to funnel these calls through the JIC. They have developed the talking points for all these issues and if more detail is needed they schedule a time for me or one of the other subject matter experts to meet with them.

In this case, if you want to send me and Monique the reporter's name and number, we'll call him back.

Thanks,  
Jody

-----Original Message-----

From: [REDACTED] NWO

Sent: Thursday, June 09, 2011 11:35 AM

To: Schenk, Kathryn M NWO; Farhat, Jody S NWD02; Johnston, Paul T HQ@ NWO

Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

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-----Original Message-----

From: Schenk, Kathryn M NWO

Sent: Thursday, June 09, 2011 11:11 AM

To: Farhat, Jody S NWD02

Cc: [REDACTED] NWO

Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Jody,

This and other similar ones will keep coming, I'm sure. We will need to think about having someone full time to answer these. Believe these should funnel thru you. Agree?

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From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 11:03 AM  
To: Schenk, Kathryn M NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
Subject: FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Q. Is this something that should be handled by someone out of Omaha???

[REDACTED]

-----Original Message-----

From: Tim.Flannery@state.sd.us [mailto:Tim.Flannery@state.sd.us]  
Sent: Tuesday, June 07, 2011 11:37 AM  
To: [REDACTED] NWO  
Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE

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Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 12:18 PM  
**To:** Farhat, Jody S NWD02; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
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This KSFY TV out of Sioux Falls. Contact Person is Jamie Stubbe 605-785-0813.

The reporter on site stated that the homeowner used some pretty strong words and feels that without some type of Corps response, a strong negative report will be heard by the viewers. I agree with this assessment.

They would at least like to try for a phone interview with our SME. They are requesting a call by 1500hrs to confirm if such an interview could be set up.

There was one other question that I already answered. That was the homeowner stated that Corps told him what elevation to flood proof his home to. He was part of the SE Pierre Buyout. I related that the elevation that was required was the FUTURE 100yr flood elevation plus 1 foot. I further related that this flood was beyond that event but would not know the actual return frequency until a later date when everything could be analyzed.

I feel this is a very important issue to address with the local news. It is foremost in the public's concern with the recent operation of the reservoirs. Not to take advantage of the opportunity to tell our side of the story would be most unfortunate.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 11:50 AM  
**To:** [REDACTED] NWO; Schenk, Kathryn M NWO; Johnston, Paul T HQ@ NWO  
**Subject:** RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - it would be best to funnel these calls through the JIC. They have developed the talking points for all these issues and if more detail is needed they schedule a time for me or one of the other subject matter experts to meet with them.

In this case, if you want to send me and Monique the reporter's name and number, we'll call him back.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 11:35 AM  
**To:** Schenk, Kathryn M NWO; Farhat, Jody S NWD02; Johnston, Paul T HQ@ NWO

Subject: RE: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

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Sent: Tuesday, June 07, 2011 11:37 AM

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Sent: Tuesday, June 07, 2011 11:37 AM

To: Stasch, Eric D NWO

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Caveats: NONE

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Caveats: NONE

**From:** Eileen Williamson [eileen.l.williamson@usace.army.mil]  
**Sent:** Thursday, June 09, 2011 11:06 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Riverwatch June 9, 2011 #2011MoRivFlood  
**Attachments:** 609NR-RIVERWATCH6-11.pdf

Missouri River Mainstem Reservoir Bulletin (Updated 9 Jun; 0900 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

- \* 2251.1 ft msl
- \* 24-hr Change (+0.2ft)

Daily Avg. Inflow

- \* 79,000 cfs (8 Jun)
- \* 101,000 cfs (7 Jun)

Daily Avg. Release

- \* 50,700 cfs (8 Jun)
- \* 48,500 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

- \* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Peak release will be 55,000 cfs by Friday.
- \* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)

- \* 2251.6 msl (1975)

Record Flow (Year)

- \* 35,000 cfs (1975)

Projected Record Flow (Date)

- \* 60,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation

- \* 1853.2 ft msl
- \* 24-hr Change (-0.2 ft)

Daily Avg. Inflow

- \* 115,000 cfs (8 Jun)
- \* 104,000 cfs (7 Jun)

Daily Avg. Release



\* 130,800 cfs (8 Jun)

\* 125,400 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

\* 1854 ft msl

River Stage (Bismarck)

\* 17.46 (0815 CDT 9 Jun)

\* Flood stage - 16 ft

\* 17.32 (0730 CDT 8 Jun)

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)

\* 1854.8 msl (1975)

Record Flow (Year)

\* 65,000 cfs (1975)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)

Midnight Elevation

\* 1618.9 ft msl

\* 24-hr Change (-0.2 ft)

Daily Avg. Inflow

\* 132,000 cfs (8 Jun)

\* 144,000 cfs (7 Jun)

Daily Avg. Release

\* 150,700 cfs (8 Jun)

\* 147,000 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

\* 1620 ft msl

River Stage (Pierre)

\* 18.84 (0731 CDT 9 Jun)

\* Flood stage - 15 ft

\* 18.8 (0800 CDT 8 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases have been stepped up to 150,000 cfs.
- \* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

- \* 1618.7 msl (1995)

Record Flow (Year)

- \* 59,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

- \* 1419.3 ft msl
- \* 24-hr Change (-0.4 ft)

Daily Avg. Inflow

- \* 148,000 cfs (8 Jun)
- \* 143,000 cfs (7 Jun)

Daily Avg. Release

- \* 148,400 cfs (8 Jun)
- \* 131,900 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

- \* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

- \* 1422.1 msl (1991)

Record Flow (Date)

- \* 74,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

- \* 1361.3 ft msl
- \* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

- \* 155,000 cfs (8 Jun)
- \* 143,000 cfs (7 Jun)

Daily Avg. Release

- \* 137,000 cfs (8 Jun)
- \* 132,700 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

- \* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

- \* 1372.2 msl (1997)

Record Flow (Date)

- \* 67,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

- \* 1207.2 ft msl
- \* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

- \* 141,000 cfs (8 Jun)
- \* 129,000 cfs (7 Jun)

Daily Avg. Release

- \* 135,600 cfs (8 Jun)
- \* 125,500 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

- \* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

- \* 1209.7 msl (2010)

Record Flow (Date)

- \* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

24-hr forecast (Glasgow, MT)

Today: Showers, mainly after noon. High near 59. East southeast wind from 10 and 17 mph, with gusts as high as 24 mph. Chance of precipitation is 80%.

Tonight: A 50% chance of rain. Cloudy, with a low around 47. East northeast wind from 5 and 11 mph.

Friday: A 20% chance of rain before noon. Mostly sunny, with a high near 66. Calm wind becoming southeast from 5 and 8 mph.

24-hr forecast (Williston, ND)

Today: Showers likely, mainly after 1pm. Mostly cloudy, with a high near 61. East wind from 5 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 70%.

Tonight: Showers. Low around 45. East wind from 8 and 11 mph becoming calm. Chance of precipitation is 80%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: A 30% chance of showers, mainly before 1pm. Mostly cloudy, with a high near 63. Calm wind becoming southeast from 5 and 8 mph.

24-hr forecast (Riverdale, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 63. East wind from 6 and 13 mph.

Tonight: Showers likely. Cloudy, with a low around 46. East wind from 5 and 9 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind from 6 and 8 mph. Chance of precipitation is 60%.

24-hr forecast (Washburn, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 and 13 mph.

Tonight: Showers likely. Cloudy, with a low around 46. East wind from 5 and 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 7 mph. Chance of precipitation is 70%.

24-hr forecast (Pierre, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 62. East wind from 10 and 17 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 51. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 63. North northwest wind from 6 and 9 mph.

24-hr forecast (Ft. Pierre, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East wind from 9 and 17 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 52. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 63. North northeast wind from 5 and 9 mph.

24-hr forecast (Lower Brule, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East northeast wind from 11 and 15 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 50. Northeast wind from 7 and 13 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 64. North northwest wind from 7 and 10 mph.

24-hr forecast (Chamberlain, SD)

Today: Showers likely, mainly after 1pm. Cloudy, with a high near 63. East northeast wind from 7 and 14 mph. Chance of precipitation is 60%. New rainfall amounts from a .10 and .25 of an inch possible.

Tonight: A chance of showers, mainly before 1am. Cloudy, with a low around 48. North northeast wind from 6 and 8 mph. Chance of precipitation is 50%.

Friday: A chance of showers and t-storms, mainly after 1pm. Mostly cloudy, with a high near 65. North northwest wind from 6 and 10 mph. Chance of precipitation is 30%.

24-hr forecast (Yankton, SD)

Today: Isolated showers, then showers likely and possibly a t-storm after 1pm. Mostly cloudy, with high near 65. NE wind from 7 to 15 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, higher amounts possible in t-storms.

Tonight: Showers likely and possibly a t-storm before 1am, then a slight chance of showers and t-storms after 1am. Cloudy, with a low around 53. North northwest wind around 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.

Friday: Slight chance of showers and t-storms. Mostly cloudy, with a high near 67. NNW wind from 8 to 10 mph. Chance of precipitation is 20%.

24-hr forecast (Bismarck/Mandan, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 to 14 mph, with gusts as high as 20 mph.

Tonight: Showers likely. Cloudy, with a low around 45. East wind from 6 to 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 8 mph. Chance of precipitation is 70%.

24-hr forecast (Sioux City, IA)

Today: Showers and t-storms likely, mainly after 1pm. Mostly cloudy, with a high near 70. ENE wind from 10 to 14 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.

Tonight: Occasional showers and t-storms, mainly before 1am. Low around 57. Northeast wind from 8 to 14 mph. Chance of precipitation is 80%. New rainfall amounts from a .25 to half of an inch possible.

Friday: Slight chance of showers and t-storms. Mostly cloudy, with a high near 70. NNW wind from 9 to 11 mph. Chance of precipitation is 20%.

24-hr forecast (Omaha, NE)

Today: A 50% chance of showers and t-storms. Cloudy, with a high near 74. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.

Tonight: Showers and t-storms likely, mainly before 1am. Cloudy, with a low around 60. Northeast wind from 6 to 11 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.

Friday: A 20% chance of showers and t-storms. Mostly cloudy, with a high near 74. North northwest wind around 9 mph.

Source of information: <http://www.weather.gov/>  
Internet: <http://www.nwo.usace.army.mil>  
Facebook: <http://www.facebook.com/OmahaUSACE>  
Twitter: <http://www.twitter.com/OmahaUSACE>  
YouTube: <http://www.youtube.com/OmahaUSACE>  
Flickr: <http://www.flickr.com/photos/omahausace>

If you would rather not receive future communications from U.S. Army Corps of Engineers Omaha District, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317698x3x1875268x24000x6&Email=Jody.S.Farhat%40usace.army.mil>>

U.S. Army Corps of Engineers Omaha District, 1616 Capitol Ave, Omaha, NE 68102 United States



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem Reservoir Bulletin (Updated 9 Jun; 0900 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Osage (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
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Release</b> <ul style="list-style-type: none"> <li>130,800 cfs (8 Jun)</li> <li>125,400 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.46 (0815 CDT 9 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.32 (0730 CDT 8 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.9 ft msl</li> <li>24-hr Change (-0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (8 Jun)</li> <li>144,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,700 cfs (8 Jun)</li> <li>147,000 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.84 (0731 CDT 9 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.8 (0800 CDT 8 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.3 ft msl</li> <li>24-hr Change (-0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (8 Jun)</li> <li>143,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>148,400 cfs (8 Jun)</li> <li>131,900 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1361.3 ft msl</li> <li>24-hr Change (+0.5 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>155,000 cfs (8 Jun)</li> <li>143,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>137,000 cfs (8 Jun)</li> <li>132,700 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.2 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>141,000 cfs (8 Jun)</li> <li>129,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>135,600 cfs (8 Jun)</li> <li>125,500 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>



US Army Corps  
of Engineers  
Owathee District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 9 Jun; 0900 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<p><b>24-hr forecast (Glasgow, MT)</b> <b>Today:</b> Showers, mainly after noon. High near 59. East southeast wind from 10 and 17 mph, with gusts as high as 24 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> A 50% chance of rain. Cloudy, with a low around 47. East northeast wind from 5 and 11 mph.</p> <p><b>Friday:</b> A 20% chance of rain before noon. Mostly sunny, with a high near 66. Calm wind becoming southeast from 5 and 8 mph.</p> <p><b>24-hr forecast (Williston, ND)</b> <b>Today:</b> Showers likely, mainly after 1pm. Mostly cloudy, with a high near 61. East wind from 5 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 70%.</p> <p><b>Tonight:</b> Showers. Low around 45. East wind from 8 and 11 mph becoming calm. Chance of precipitation is 80%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> A 30% chance of showers, mainly before 1pm. Mostly cloudy, with a high near 63. Calm wind becoming southeast from 5 and 8 mph.</p>	<p><b>24-hr forecast (Riverdale, ND)</b> <b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 63. East wind from 6 and 13 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 46. East wind from 5 and 9 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind from 6 and 8 mph. Chance of precipitation is 60%.</p> <p><b>24-hr forecast (Washburn, ND)</b> <b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 and 13 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 46. East wind from 5 and 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 7 mph. Chance of precipitation is 70%.</p>	<p><b>24-hr forecast (Pierre, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 62. East wind from 10 and 17 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 51. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 63. North northwest wind from 6 and 9 mph.</p> <p><b>24-hr forecast (Ft. Pierre, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East wind from 9 and 17 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 52. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 63. North northeast wind from 5 and 9 mph.</p>	<p><b>24-hr forecast (Lower Brule, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East northeast wind from 11 and 15 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 50. Northeast wind from 7 and 13 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 64. North northwest wind from 7 and 10 mph.</p>	<p><b>24-hr forecast (Chamberlain, SD)</b> <b>Today:</b> Showers likely, mainly after 1pm. Cloudy, with a high near 63. East northeast wind from 7 and 14 mph. Chance of precipitation is 60%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Tonight:</b> A chance of showers, mainly before 1am. Cloudy, with a low around 48. North northeast wind from 6 and 8 mph. Chance of precipitation is 50%.</p> <p><b>Friday:</b> A chance of showers and t-storms, mainly after 1pm. Mostly cloudy, with a high near 65. North northwest wind from 6 and 10 mph. Chance of precipitation is 30%.</p>	<p><b>24-hr forecast (Yankton, SD)</b> <b>Today:</b> Isolated showers, then showers likely and possibly a t-storm after 1pm. Mostly cloudy, with high near 65. NE wind from 7 to 15 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, higher amounts possible in t-storms.</p> <p><b>Tonight:</b> Showers likely and possibly a t-storm before 1am, then a slight chance of showers and t-storms after 1am. Cloudy, with a low around 53. North northwest wind around 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.</p> <p><b>Friday:</b> Slight chance of showers and t-storms. Mostly cloudy, with a high near 67. NNW wind from 8 to 10 mph. Chance of precipitation is 20%.</p>

Source of information: <http://www.weather.gov>





US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 9 Jun; 0900 CDT)

Fort Peck	Garrison	Osage	Big Bend	Fort Randall	Gardiner Point
	<p><b>24-hr forecast</b> <i>(Bismarck/Mandan, ND)</i></p> <p><b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 to 14 mph, with gusts as high as 20 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 45. East wind from 6 to 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 8 mph. Chance of precipitation is 70%.</p>				<p><b>24-hr forecast (Sioux City, IA)</b></p> <p><b>Today:</b> Showers and t-storms likely, mainly after 1pm. Mostly cloudy, with a high near 70. ENE wind from 10 to 14 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Tonight:</b> Occasional showers and t-storms, mainly before 1am. Low around 57. Northeast wind from 8 to 14 mph. Chance of precipitation is 80%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Friday:</b> Slight chance of showers and t-storms. Mostly cloudy, with a high near 70. NNW wind from 9 to 11 mph. Chance of precipitation is 20%.</p> <p><b>24-hr forecast (Omaha, NE)</b></p> <p><b>Today:</b> A 50% chance of showers and t-storms. Cloudy, with a high near 74. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.</p> <p><b>Tonight:</b> Showers and t-storms likely, mainly before 1am. Cloudy, with a low around 60. Northeast wind from 6 to 11 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Friday:</b> A 20% chance of showers and t-storms. Mostly cloudy, with a high near 74. North northwest wind around 9 mph.</p>

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil/>

Facebook: <http://www.facebook.com/OmahaUSACE>

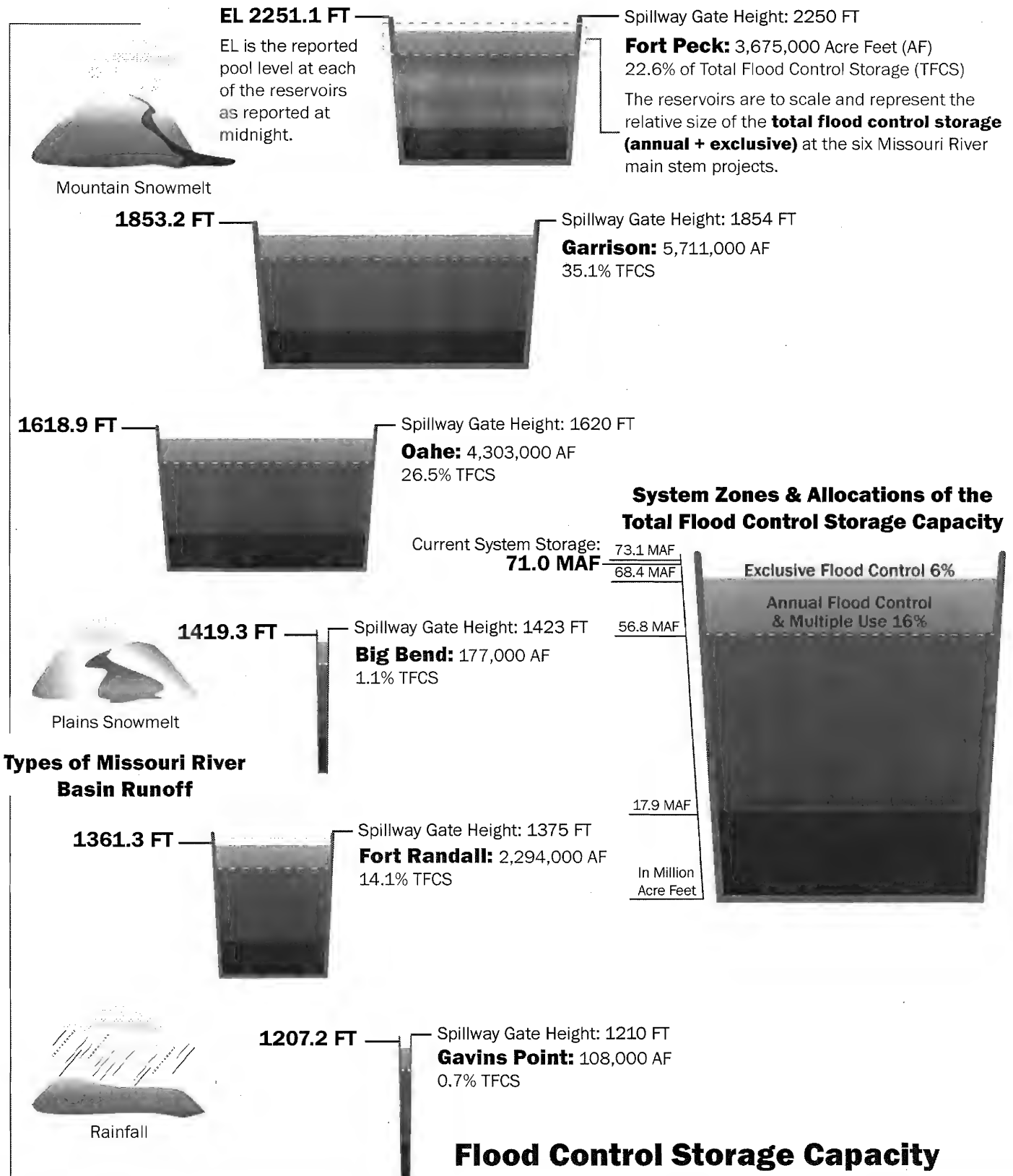
Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>

# Missouri River Main Stem Reservoir System

**Midnight Elevation (EL) Forecast: June 9, 2011** (feet above mean sea level)



**NWO**

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**From:** Schenk, Kathryn M NWO  
**Sent:** Thursday, June 09, 2011 11:11 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)  
**Attachments:** Letter to Army Corps of Engineers.pdf

Jody,

This and other similar ones will keep coming, I'm sure. We will need to think about having someone full time to answer these. Believe these should funnel thru you. Agree?

-----Original Message-----

**From:** Stasch, Eric D NWO  
**Sent:** Thursday, June 09, 2011 11:03 AM  
**To:** Schenk, Kathryn M NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Forwarding this for guidance. In a quick discussion with Tim F. prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

[REDACTED]

-----Original Message-----

**From:** [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:[Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us)]  
**Sent:** Tuesday, June 07, 2011 11:37 AM  
**To:** Stasch, Eric D NWO  
**Subject:** Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED

Caveats: NONE



# SOUTH DAKOTA LEGISLATURE

State Capitol, 500 East Capitol Ave., Pierre, South Dakota 57501-5070

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June 7, 2011

Mr. Eric Stasch  
Army Corps of Engineers  
Pierre, South Dakota 57501

Dear Mr. Stasch:

The Government Operations and Audit Committee has scheduled a meeting for June 21, 2011, in room 413, in the State Capitol Building, to review various issues involving state government.

The Committee requests that you be present on June 21, 2011 to discuss the Missouri river flooding situation.

The tentative agenda has this scheduled to begin at approximately 4:00 p.m.

If you have any questions, please contact Tim Flannery with the Department of Legislative Audit at 773-3595.

Sincerely,

A handwritten signature in cursive script that reads "Lance Carson".

Representative Lance Carson, Chair  
Government Operations and Audit Committee

**NWO**

**From:** Salak, Jennifer NWO  
**Sent:** Thursday, June 09, 2011 11:05 AM  
**To:** CENWO-EOC NWO; Bertino, John J Jr NWO; [REDACTED] NWD; [REDACTED] NWO; 'bruce.sullivan@noaa.gov'; 'bruce.terry@noaa.gov'; [REDACTED] NWO; [REDACTED] Jr NWO; Davis, Joseph M Maj NWO; DLL-CENWO-EOC CMT-ALL; [REDACTED] A NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO; [REDACTED] NWO; [REDACTED] R NWO; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] D NWO; [REDACTED] NWO; [REDACTED] NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; 'michael.eckert@noaa.gov'; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; M NWO; 'robert.kelly@noaa.gov'; Ruch, Robert J COL NWO; [REDACTED] NWO; [REDACTED] NWO; Tipton, Robert A Col NWD; [REDACTED] NWO; [REDACTED] a NWO; [REDACTED] NWO; Williamson, Eileen L NWO; [REDACTED] NWD; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] LRC; [REDACTED] SPK; [REDACTED] SWG; O'Hara, Thomas A NWO; Oldham, Margaret NWO; [REDACTED] SWL; [REDACTED] NWO  
**Subject:** Riverwatch Daily Update June 9, 2011 (UNCLASSIFIED)  
**Attachments:** Flood\_Fight\_Storyboard\_9JUN.docx

Classification: UNCLASSIFIED  
Caveats: NONE

Missouri River Mainstem Reservoir Bulletin (Updated 9 Jun; 0900 CDT)

Fort Peck (In operation since 1940)  
Midnight Elevation  
\* 2251.1 ft msl  
\* 24-hr Change (+0.2ft)

Daily Avg. Inflow  
\* 79,000 cfs (8 Jun)  
\* 101,000 cfs (7 Jun)

Daily Avg. Release  
\* 50,700 cfs (8 Jun)  
\* 48,500 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 2246 ft msl - 2250 ft msl

Top of Spillway Gates  
\* 2250 ft msl

Planned Scheduled Releases (Subject to Change)  
\* Peak release will be 55,000 cfs by Friday.  
\* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)  
\* 2251.6 msl (1975)

Record Flow (Year)  
\* 35,000 cfs (1975)

Projected Record Flow (Date)  
\* 60,000 cfs (Mid June)

Garrison (In operation since 1955)  
Midnight Elevation  
\* 1853.2 ft msl  
\* 24-hr Change (-0.2 ft)

Daily Avg. Inflow  
\* 115,000 cfs (8 Jun)  
\* 104,000 cfs (7 Jun)

Daily Avg. Release  
\* 130,800 cfs (8 Jun)  
\* 125,400 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates  
\* 1854 ft msl

River Stage (Bismarck)  
\* 17.46 (0815 CDT 9 Jun)  
\* Flood stage - 16 ft  
\* 17.32 (0730 CDT 8 Jun)

Planned Scheduled Releases (Subject to Change)  
\* Releases will be stepped up to 150,000 cfs by mid June.  
\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)  
\* 1854.8 msl (1975)

Record Flow (Year)  
\* 65,000 cfs (1975)

Projected Record Flow (Date)  
\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)  
Midnight Elevation  
\* 1618.9 ft msl  
\* 24-hr Change (-0.2 ft)

Daily Avg. Inflow  
\* 132,000 cfs (8 Jun)  
\* 144,000 cfs (7 Jun)

Daily Avg. Release

- \* 150,700 cfs (8 Jun)
- \* 147,000 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

- \* 1620 ft msl

River Stage (Pierre)

- \* 18.84 (0731 CDT 9 Jun)
- \* Flood stage - 15 ft
- \* 18.8 (0800 CDT 8 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases have been stepped up to 150,000 cfs.
- \* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

- \* 1618.7 msl (1995)

Record Flow (Year)

- \* 59,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

- \* 1419.3 ft msl
- \* 24-hr Change (-0.4 ft)

Daily Avg. Inflow

- \* 148,000 cfs (8 Jun)
- \* 143,000 cfs (7 Jun)

Daily Avg. Release

- \* 148,400 cfs (8 Jun)
- \* 131,900 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

- \* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1361.3 ft msl

\* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

\* 155,000 cfs (8 Jun)

\* 143,000 cfs (7 Jun)

Daily Avg. Release

\* 137,000 cfs (8 Jun)

\* 132,700 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.2 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 141,000 cfs (8 Jun)

\* 129,000 cfs (7 Jun)

Daily Avg. Release

\* 135,600 cfs (8 Jun)

\* 125,500 cfs (7 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)



\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

24-hr forecast (Glasgow, MT)

Today: Showers, mainly after noon. High near 59. East southeast wind from 10 and 17 mph, with gusts as high as 24 mph. Chance of precipitation is 80%.

Tonight: A 50% chance of rain. Cloudy, with a low around 47. East northeast wind from 5 and 11 mph.

Friday: A 20% chance of rain before noon. Mostly sunny, with a high near 66. Calm wind becoming southeast from 5 and 8 mph.

24-hr forecast (Williston, ND)

Today: Showers likely, mainly after 1pm. Mostly cloudy, with a high near 61. East wind from 5 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 70%.

Tonight: Showers. Low around 45. East wind from 8 and 11 mph becoming calm. Chance of precipitation is 80%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: A 30% chance of showers, mainly before 1pm. Mostly cloudy, with a high near 63. Calm wind becoming southeast from 5 and 8 mph.

24-hr forecast (Riverdale, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 63. East wind from 6 and 13 mph.

Tonight: Showers likely. Cloudy, with a low around 46. East wind from 5 and 9 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind from 6 and 8 mph. Chance of precipitation is 60%.

24-hr forecast (Washburn, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 and 13 mph.

Tonight: Showers likely. Cloudy, with a low around 46. East wind from 5 and 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 7 mph. Chance of precipitation is 70%.

#### 24-hr forecast (Pierre, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 62. East wind from 10 and 17 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 51. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 63. North northwest wind from 6 and 9 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East wind from 9 and 17 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 52. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 63. North northeast wind from 5 and 9 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East northeast wind from 11 and 15 mph. Chance of precipitation is 80%.

Tonight: Showers likely, mainly before 1am. Cloudy, with a low around 50. Northeast wind from 7 and 13 mph. Chance of precipitation is 60%.

Friday: A 30% chance of showers. Cloudy, with a high near 64. North northwest wind from 7 and 10 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Showers likely, mainly after 1pm. Cloudy, with a high near 63. East northeast wind from 7 and 14 mph. Chance of precipitation is 60%. New rainfall amounts from a .10 and .25 of an inch possible.

Tonight: A chance of showers, mainly before 1am. Cloudy, with a low around 48. North northeast wind from 6 and 8 mph. Chance of precipitation is 50%.

Friday: A chance of showers and t-storms, mainly after 1pm. Mostly cloudy, with a high near 65. North northwest wind from 6 and 10 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Yankton, SD)

Today: Isolated showers, then showers likely and possibly a t-storm after 1pm. Mostly cloudy, with high near 65. NE wind from 7 to 15 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, higher amounts possible in t-storms.

Tonight: Showers likely and possibly a t-storm before 1am, then a slight chance of showers and t-storms after 1am. Cloudy, with a low around 53. North northwest wind around 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.

Friday: Slight chance of showers and t-storms. Mostly cloudy, with a high near 67. NNW wind from 8 to 10 mph. Chance of precipitation is 20%.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 to 14 mph, with gusts as high as 20 mph.

Tonight: Showers likely. Cloudy, with a low around 45. East wind from 6 to 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch possible.

Friday: Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 8 mph. Chance of precipitation is 70%.

#### 24-hr forecast (Sioux City, IA)

Today: Showers and t-storms likely, mainly after 1pm. Mostly cloudy, with a high near 70. ENE wind from 10 to 14 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.

Tonight: Occasional showers and t-storms, mainly before 1am. Low around 57. Northeast wind from 8 to 14 mph. Chance of precipitation is 80%. New rainfall amounts from a .25 to half of an inch possible.

Friday: Slight chance of showers and t-storms. Mostly cloudy, with a high near 70. NNW wind from 9 to 11 mph. Chance of precipitation is 20%.

#### 24-hr forecast (Omaha, NE)

Today: A 50% chance of showers and t-storms. Cloudy, with a high near 74. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.

Tonight: Showers and t-storms likely, mainly before 1am. Cloudy, with a low around 60. Northeast wind from 6 to 11 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.

Friday: A 20% chance of showers and t-storms. Mostly cloudy, with a high near 74. North northwest wind around 9 mph.

Source of information: <http://www.weather.gov/>  
Internet: <http://www.nwo.usace.army.mil>  
Facebook: <http://www.facebook.com/OmahaUSACE>  
Twitter: <http://www.twitter.com/OmahaUSACE>  
YouTube: <http://www.youtube.com/OmahaUSACE>  
Flickr: <http://www.flickr.com/photos/omahausace>

Missouri River Flooding (Logistics) (Updated 8 Jun; 0900 CDT) Personnel Deployed  
6 (Glasgow, MT)  
5 (Lander, WY)  
12 (Bismarck, ND)  
1 (Fort Yates, ND)

5 (Williston, ND)  
1 (Box Elder, MT)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
4 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
7 (Missouri River Survey)  
1 (Decatur, NE)  
3 (Offutt, NE)  
8 (North Platte, NE)  
5 (Roundup, MT)

#### Equipment Deployed

##### HESCO

Issued: 35,370 LF

On Hand: 30,280 LF

Projected Outstanding Requirements: 21,720 LF Currently working on: 12,000 LF due in from Louisiana

##### Poly Rolls

Issued: 2201 rolls

On Hand: 1366 rolls

Projected Outstanding Requirements: 1500 rolls 1750 rolls due in

##### Pumps

Issued: 19 pumps

On Hand: 13 (4-12"; 1-16"; 8-16")

Projected Outstanding Requirements: 7 pumps

##### RDFW

Received 2 crates

#### Additional Supplies due in:

Sandbags: 500,000 due in

Poly Roll: 1,750 due in

Pumps: 1 with hoses from TN due in 9 Jun

##### Sandbags

Issued: 13.8 M

On Hand: 4,782,500

Projected Outstanding Requirements: 6.5 M Currently working on: Contracting has 500K due in from Vendor, 650K due in from NWS

Source of information: CMT Brief (8 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 9 Jun; 0900 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.1 ft msl</li> <li>24-hr Change (+0.2ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>79,000 cfs (8 Jun)</li> <li>101,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>50,700 cfs (8 Jun)</li> <li>48,500 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Peak release will be 55,000 cfs by Friday.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.2 ft msl</li> <li>24-hr Change (-0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>115,000 cfs (8 Jun)</li> <li>104,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>130,800 cfs (8 Jun)</li> <li>125,400 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.46 (0815 CDT 9 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.32 (0730 CDT 8 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.9 ft msl</li> <li>24-hr Change (-0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (8 Jun)</li> <li>144,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,700 cfs (8 Jun)</li> <li>147,000 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.84 (0731 CDT 9 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.8 (0800 CDT 8 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.3 ft msl</li> <li>24-hr Change (-0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (8 Jun)</li> <li>143,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>148,400 cfs (8 Jun)</li> <li>131,900 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1361.3 ft msl</li> <li>24-hr Change (+0.5 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>155,000 cfs (8 Jun)</li> <li>143,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>137,000 cfs (8 Jun)</li> <li>132,700 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.2 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>141,000 cfs (8 Jun)</li> <li>129,000 cfs (7 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>135,600 cfs (8 Jun)</li> <li>125,500 cfs (7 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 9 Jun; 0900 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<p><b>24-hr forecast (Glasgow, MT)</b> <b>Today:</b> Showers, mainly after noon. High near 59. East southeast wind from 10 and 17 mph, with gusts as high as 24 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> A 50% chance of rain. Cloudy, with a low around 47. East northeast wind from 5 and 11 mph.</p> <p><b>Friday:</b> A 20% chance of rain before noon. Mostly sunny, with a high near 66. Calm wind becoming southeast from 5 and 8 mph.</p> <p><b>24-hr forecast (Williston, ND)</b> <b>Today:</b> Showers likely, mainly after 1pm. Mostly cloudy, with a high near 61. East wind from 5 and 14 mph, with gusts as high as 20 mph. Chance of precipitation is 70%.</p> <p><b>Tonight:</b> Showers. Low around 45. East wind from 8 and 11 mph becoming calm. Chance of precipitation is 80%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> A 30% chance of showers, mainly before 1pm. Mostly cloudy, with a high near 63. Calm wind becoming southeast from 5 and 8 mph.</p>	<p><b>24-hr forecast (Riverdale, ND)</b> <b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 63. East wind from 6 and 13 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 46. East wind from 5 and 9 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind from 6 and 8 mph. Chance of precipitation is 60%.</p> <p><b>24-hr forecast (Washburn, ND)</b> <b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 and 13 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 46. East wind from 5 and 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 7 mph. Chance of precipitation is 70%.</p>	<p><b>24-hr forecast (Pierre, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 62. East wind from 10 and 17 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 51. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 63. North northwest wind from 6 and 9 mph.</p> <p><b>24-hr forecast (Ft. Pierre, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East wind from 9 and 17 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 52. East northeast wind from 6 and 14 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 63. North northeast wind from 5 and 9 mph.</p>	<p><b>24-hr forecast (Lower Brule, SD)</b> <b>Today:</b> Showers likely, then showers and possibly a t-storm after 1pm. High near 63. East northeast wind from 11 and 15 mph. Chance of precipitation is 80%.</p> <p><b>Tonight:</b> Showers likely, mainly before 1am. Cloudy, with a low around 50. Northeast wind from 7 and 13 mph. Chance of precipitation is 60%.</p> <p><b>Friday:</b> A 30% chance of showers. Cloudy, with a high near 64. North northwest wind from 7 and 10 mph.</p>	<p><b>24-hr forecast (Chamberlain, SD)</b> <b>Today:</b> Showers likely, mainly after 1pm. Cloudy, with a high near 63. East northeast wind from 7 and 14 mph. Chance of precipitation is 60%. New rainfall amounts from a .10 and .25 of an inch possible.</p> <p><b>Tonight:</b> A chance of showers, mainly before 1am. Cloudy, with a low around 48. North northeast wind from 6 and 8 mph. Chance of precipitation is 50%.</p> <p><b>Friday:</b> A chance of showers and t-storms, mainly after 1pm. Mostly cloudy, with a high near 65. North northwest wind from 6 and 10 mph. Chance of precipitation is 30%.</p>	<p><b>24-hr forecast (Yankton, SD)</b> <b>Today:</b> Isolated showers, then showers likely and possibly a t-storm after 1pm. Mostly cloudy, with high near 65. NE wind from 7 to 15 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch, higher amounts possible in t-storms.</p> <p><b>Tonight:</b> Showers likely and possibly a t-storm before 1am, then a slight chance of showers and t-storms after 1am. Cloudy, with a low around 53. North northwest wind around 10 mph. Chance of precipitation is 70%.</p> <p>New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.</p> <p><b>Friday:</b> Slight chance of showers and t-storms. Mostly cloudy, with a high near 67. NNW wind from 8 to 10 mph. Chance of precipitation is 20%.</p>

Source of information: <http://www.weather.gov>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 9 Jun; 0900 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
	<p><b>24-hr forecast (Bismarck/Mandan, ND)</b> <b>Today:</b> A 50% chance of showers, mainly after 1pm. Mostly cloudy, with a high near 62. East wind from 6 to 14 mph, with gusts as high as 20 mph.</p> <p><b>Tonight:</b> Showers likely. Cloudy, with a low around 45. East wind from 6 to 10 mph. Chance of precipitation is 70%. New rainfall amounts from a .10 to .25 of an inch possible.</p> <p><b>Friday:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 59. East wind around 8 mph. Chance of precipitation is 70%.</p>				<p><b>24-hr forecast (Sioux City, IA)</b> <b>Today:</b> Showers and t-storms likely, mainly after 1pm. Mostly cloudy, with a high near 70. ENE wind from 10 to 14 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Tonight:</b> Occasional showers and t-storms, mainly before 1am. Low around 57. Northeast wind from 8 to 14 mph. Chance of precipitation is 80%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Friday:</b> Slight chance of showers and t-storms. Mostly cloudy, with a high near 70. NNW wind from 9 to 11 mph. Chance of precipitation is 20%.</p> <p><b>24-hr forecast (Omaha, NE)</b> <b>Today:</b> A 50% chance of showers and t-storms. Cloudy, with a high near 74. East northeast wind around 14 mph, with gusts as high as 20 mph. New rainfall amounts from a .10 to .25 of an inch, except higher amounts possible in t-storms.</p> <p><b>Tonight:</b> Showers and t-storms likely, mainly before 1am. Cloudy, with a low around 60. Northeast wind from 6 to 11 mph. Chance of precipitation is 70%. New rainfall amounts from a .25 to half of an inch possible.</p> <p><b>Friday:</b> A 20% chance of showers and t-storms. Mostly cloudy, with a high near 74. North northwest wind around 9 mph.</p>

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 8 Jun; 0900 CDT)

### Personnel Deployed

6 (Glasgow, MT)  
5 (Lander, WY)  
12 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Box Elder, MT)

5 (Pierre, SD)  
1 (Kansas City, MO)  
4 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)

7 (Missouri River Survey)  
1 (Decatur, NE)  
3 (Offutt, NE)  
8 (North Platte, NE)  
5 (Roundup, MT)

### Equipment Deployed

#### HESCO

Issued: 35,370 LF  
On Hand: 30,280 LF  
Projected Outstanding Requirements: 21,720 LF  
Currently working on: 12,000 LF due in from Louisiana

#### Poly Rolls

Issued: 2201 rolls  
On Hand: 1366 rolls  
Projected Outstanding Requirements: 1500 rolls  
1750 rolls due in

#### Pumps

Issued: 19 pumps  
On Hand: 13 (4-12"; 1-16"; 8-16")  
Projected Outstanding Requirements: 7 pumps

#### RDFW

Received 2 crates

#### Additional Supplies due in:

Sandbags: 500,000 due in  
Poly Roll: 1,750 due in  
Pumps: 1 with hoses from TN due in 9 Jun

#### Sandbags

Issued: 13.8 M  
On Hand: 4,782,500  
Projected Outstanding Requirements: 6.5 M  
Currently working on: Contracting has 500K due in from Vendor,  
650K due in from NWS



**NWO**

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**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 11:03 AM  
**To:** Schenk, Kathryn M NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO  
**Subject:** FW: Government Operations and Audit Committee meeting - June 21, 2011 (UNCLASSIFIED)  
**Attachments:** Letter to Army Corps of Engineers.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Forwarding this for guidance. In a quick discussion with Tim F. prior to this email, he related that State Senators and Reps would be questioning the operation of the system due to this flooding.

Q. Is this something that should be handled by someone out of Omaha???

[REDACTED]

-----Original Message-----

From: [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:[Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us)]  
Sent: Tuesday, June 07, 2011 11:37 AM  
To: Stasch, Eric D NWO  
Subject: Government Operations and Audit Committee meeting - June 21, 2011

To expedite matters as much as possible. I am sending this e-mail with the attached PDF letter from Representative Lance Carson, Chair of the Government Operations and Audit Committee, requesting that you attend the next GOAC committee meeting to discuss the Missouri River flooding situation.

<<Letter to Army Corps of Engineers.pdf>> If you have any questions, please contact me.  
Thank you

Tim Flannery  
Department of Legislative Audit  
427 S Chapelle  
Pierre, SD 57501  
605-773-6442

Classification: UNCLASSIFIED  
Caveats: NONE



# SOUTH DAKOTA LEGISLATURE

State Capitol, 500 East Capitol Ave., Pierre, South Dakota 57501-5070

---

June 7, 2011

Mr. Eric Stasch  
Army Corps of Engineers  
Pierre, South Dakota 57501

Dear Mr. Stasch:

The Government Operations and Audit Committee has scheduled a meeting for June 21, 2011, in room 413, in the State Capitol Building, to review various issues involving state government.

The Committee requests that you be present on June 21, 2011 to discuss the Missouri river flooding situation.

The tentative agenda has this scheduled to begin at approximately 4:00 p.m.

If you have any questions, please contact Tim Flannery with the Department of Legislative Audit at 773-3595.

Sincerely,

A handwritten signature in cursive script that reads "Lance Carson".

Representative Lance Carson, Chair  
Government Operations and Audit Committee

**[REDACTED] NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 10:53 AM  
**To:** Love, Raymond E MAJ NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** WM Update - 6-9-11 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 060911.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

Ray,

Today's Update is attached.

[REDACTED]  
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers  
402-996-3861  
[REDACTED][@usace.army.mil](mailto:[REDACTED]@usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Stages

9 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
A	Bismarck	16	17.5	150 kcfs 20.6	June 19	
B	Pierre	13	18.8	150 kcfs 18.7	June 7	
C	Yankton	20	23.8	150 kcfs n/a	June 14	
D	Sioux City	30	32.8	170 kcfs 35	June 15	44.28 (1952)
E	Decatur	35	36.3	175 kcfs 40	June 15	43.5 (1943)
F	Blair	26	29.7	175 kcfs 30	June 15	33.5 (1952)
G	Omaha	29	30.4	175 kcfs 34	June 16	40.2 (1952)
H	Nebraska City	18	23.4	200 kcfs 27	June 16	27.19 (1993)
I	Brownville	33	39.5	205 kcfs 43	June 16	44.3 (1993)
J	Rulo	17	23.2	210 kcfs 25.5	June 17	26.63 (2010)
K	St. Joseph	17	22.2	215 kcfs 27	June 17	32.07 (1993)
L	Atchison	22	25.1	215 kcfs 30	June 17	31.63 (1993)
M	Leavenworth	20	20.5	215 kcfs 27	June 17	35.34 (1993)

# Missouri River Basin Stages

9 June 2011



US Army Corps of Engineers  
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
N	Kansas City	32	26.4	220 kcfs 30 350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	25.5	220 kcfs 28 350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	22.3	220 kcfs 25 350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	24.9	230 kcfs 27 370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	23.4	235 kcfs 26 370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	25.9	250 kcfs 32 410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	22.7	260 kcfs 27 420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	22.2	260 kcfs 27 430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	19.0	290 kcfs 24 450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	n/a	300 kcfs 30 470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	23.0	300 kcfs 27 470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19.4	300 kcfs 23 470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.6	300 kcfs 28 470 kcfs 37	June 20	40.04 (1993)

**NWO**

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 09, 2011 10:49 AM  
**To:** [REDACTED] NWK  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Missouri Mainstem Info to Congressional Visit (UNCLASSIFIED)  
**Attachments:** Elev and Storage Traces - last 10 years.pptx; BG McMahon 5 June 11.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Before you go too far down the road creating new products, take a look at what Jody developed for General Temple (also attached). I've also include a 10-year elevation/storage trace that we recently developed for Witt Anderson.

<http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/MissouriRiverFlooding6Jun2011.pdf>

Link we use for May precip departure of normal:

[http://water.weather.gov/precip/save.php?yday=1307577600&yday\\_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=dep\\_normal&loc=stateMT](http://water.weather.gov/precip/save.php?yday=1307577600&yday_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=dep_normal&loc=stateMT)

Normal:

[http://water.weather.gov/precip/save.php?yday=1307577600&yday\\_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=normal&loc=stateMT](http://water.weather.gov/precip/save.php?yday=1307577600&yday_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=normal&loc=stateMT)

Percent of normal:

[http://water.weather.gov/precip/save.php?yday=1307577600&yday\\_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=per\\_normal&loc=stateMT](http://water.weather.gov/precip/save.php?yday=1307577600&yday_analysis=0&layer%5B%5D=0&layer%5B%5D=1&layer%5B%5D=4&timetype=YM&loctype=STATE&units=engl&timeframe=current&timeYYYY=2011&timeMM=5&product=per_normal&loc=stateMT)

=====

System Storage Totals / Mountain Snowpack / Forecasted System Releases:

Jan 28 - 56.8 MAF, base of Annual FC and Multiple Use Zone (all flood control storage available)

-----

Mar 1 - 57.6 MAF, Mar 1 study indicated a max System release of 36 kcfs under Basic (most likely) with an annual runoff forecast of 29.8 MAF, 120% of normal <http://www.nwd-mr.usace.army.mil/rcc/reports/resfcst.html>

Mar 1 mountain snowpack was 108% of normal (110% Peck/107% Garr).  
<http://www.nwd-mr.usace.army.mil/rcc/reports/snowpck.html>

-----

Apr 1 - 61.8 MAF, Apr 1 study indicated a max System release of 45 kcfs under Basic (most likely) with an annual runoff forecast of 33.8 MAF, 136% of normal <http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/resfcastApr.pdf>

Apr 1 mountain snowpack was 114% of normal (116% Peck / 112% Garr).  
<http://www.nwd-mr.usace.army.mil/rcc/reports/snowpck.html>

-----  
May 1 - 65.5 MAF, May 1 study indicated a max System release of 57.5 kcfs under Basic (most likely) with an annual runoff forecast of 44.0 MAF, 178% of normal <http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/resfcastMay.pdf>

May 1 mountain snowpack was 138% of normal Apr 15 peak (141% Peck/136% Garr).  
<http://www.nwd-mr.usace.army.mil/rcc/reports/snowpck.html>

-----  
May 28 - 69.4 MAF

Jun 1 - 70.6 MAF, annual runoff forecast of 52.5 MAF, 212% of normal, 3.5 MAF above record 1997.

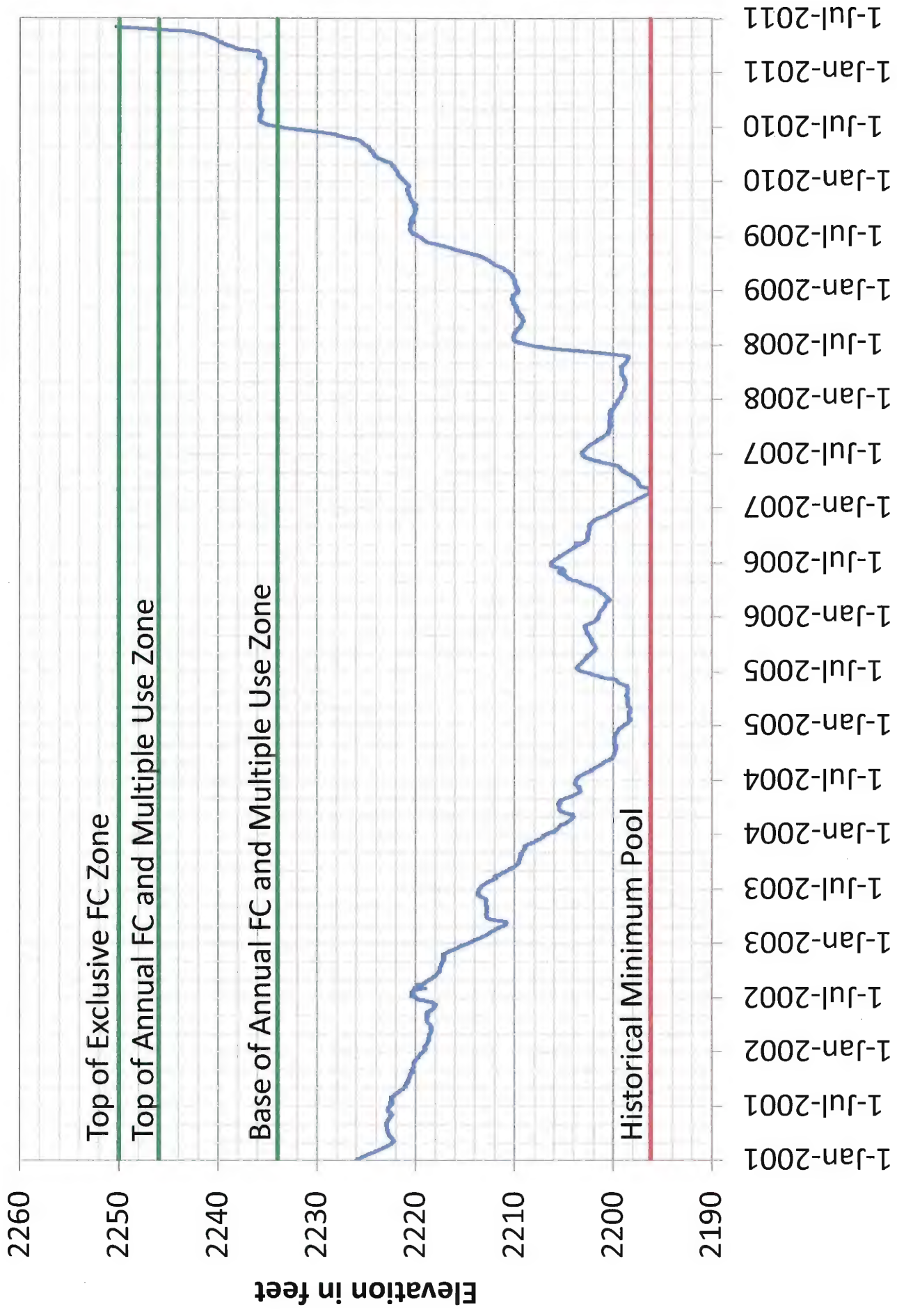
- [REDACTED]

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED]  
[REDACTED] (fax)

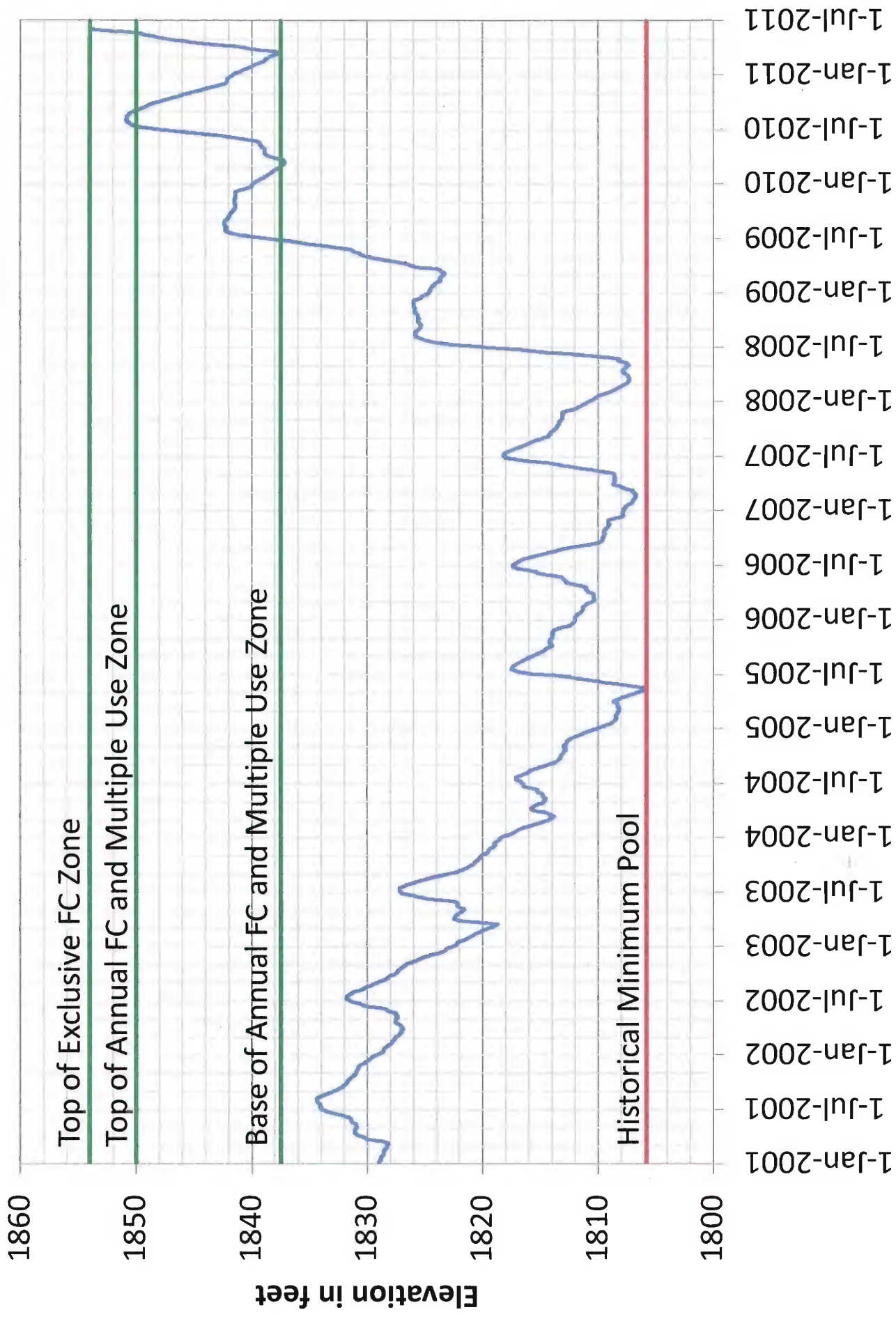
Classification: UNCLASSIFIED  
Caveats: NONE

# Fort Peck

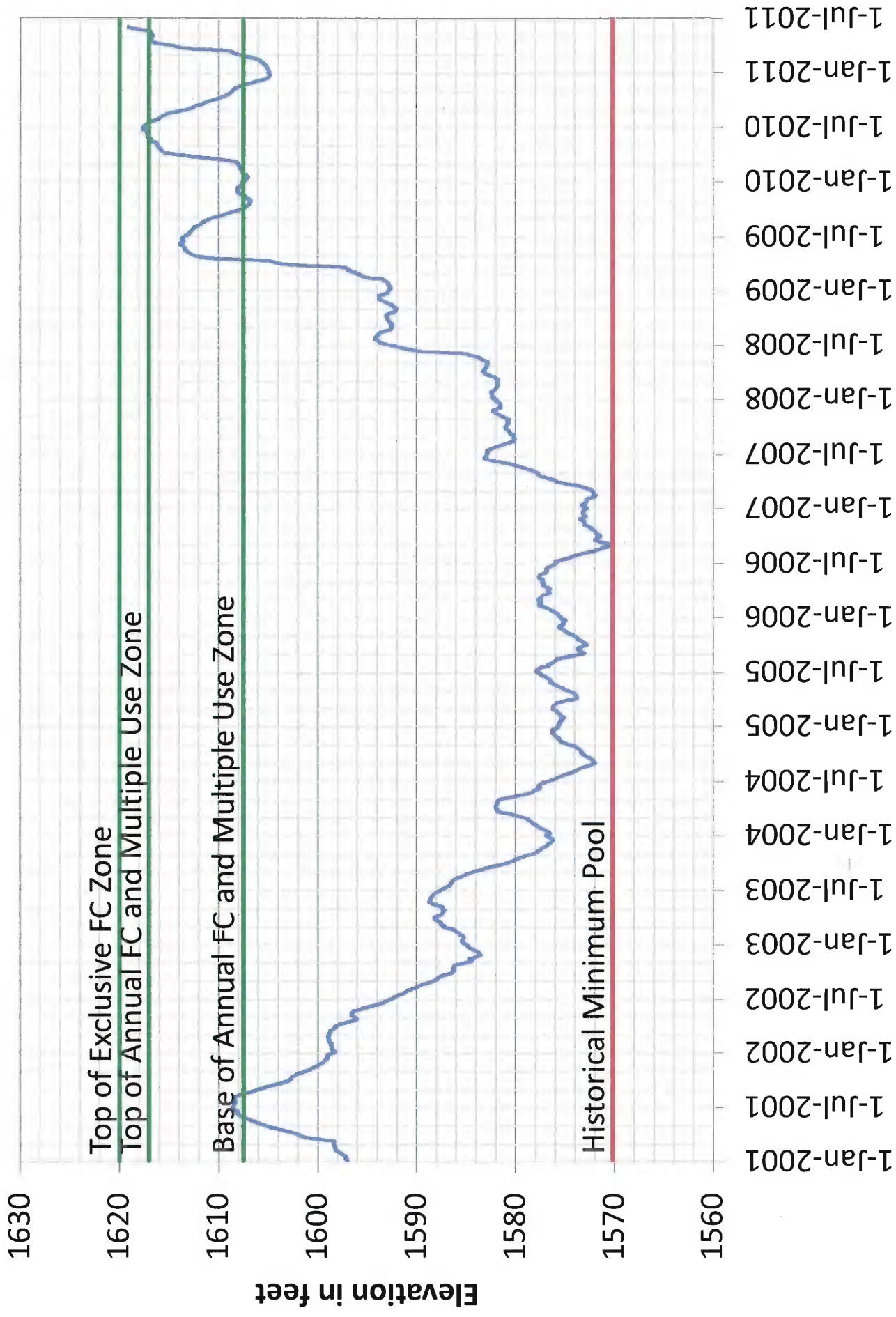




# Garrison

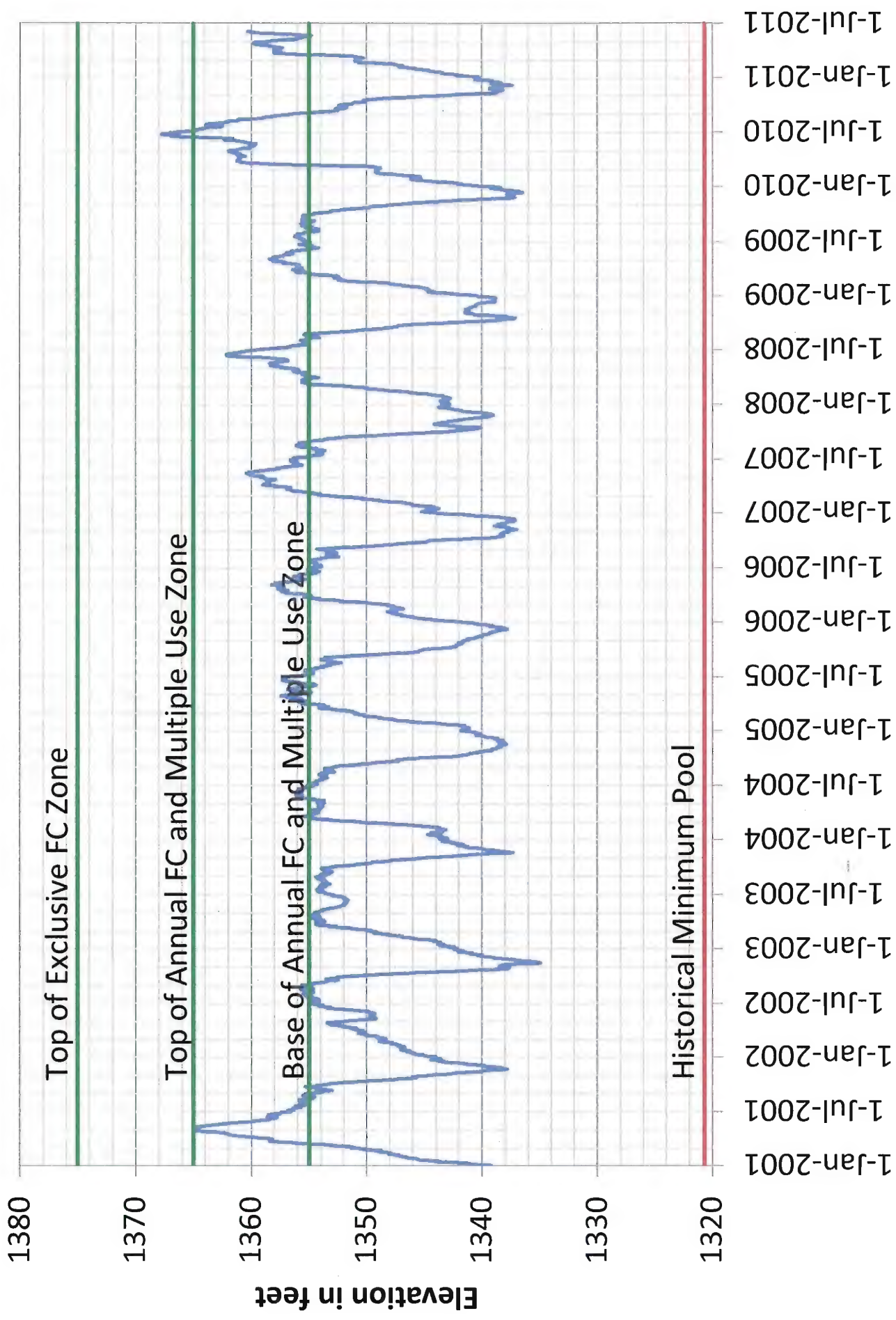


# Oahe

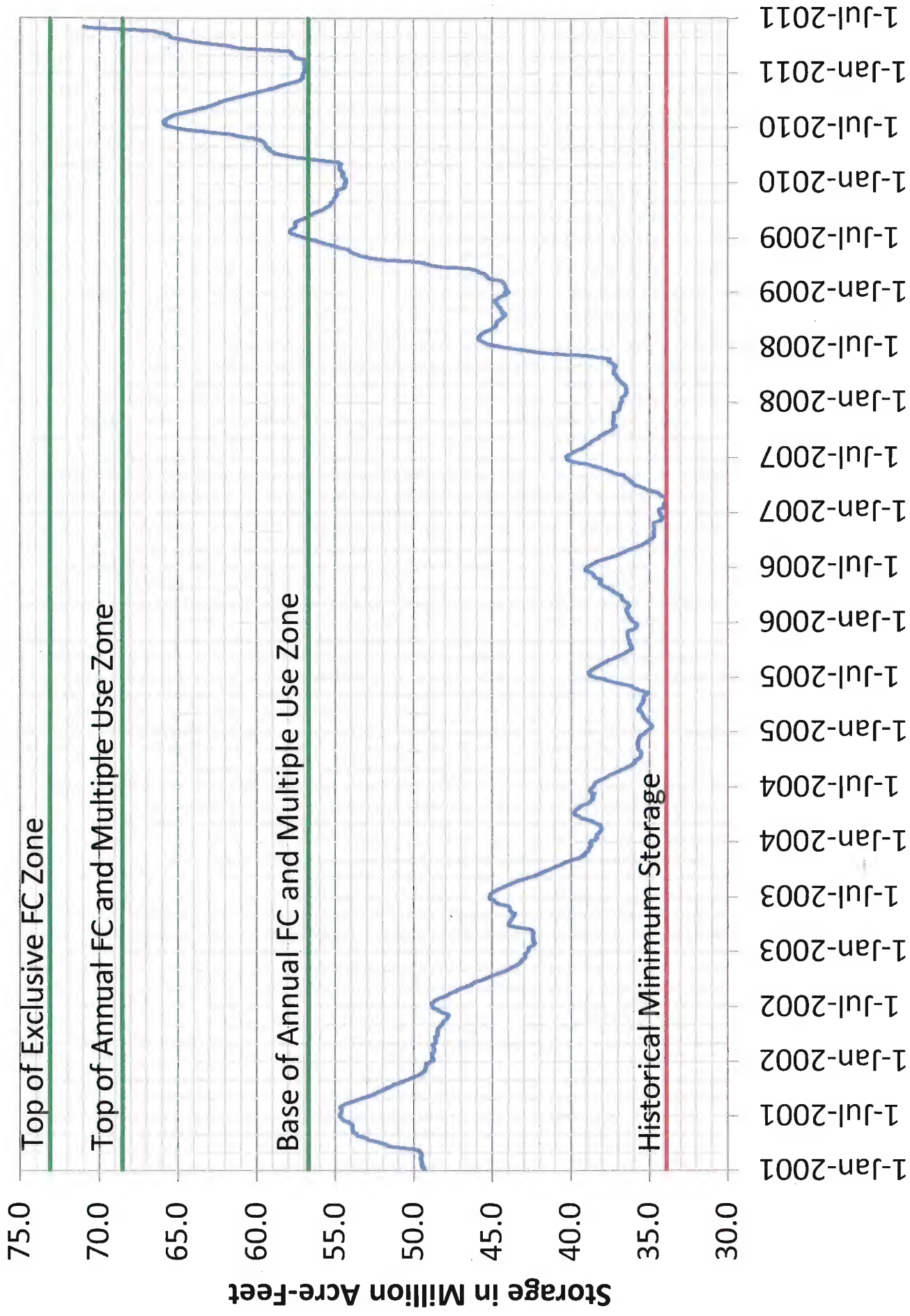




# Fort Randall



# Missouri River Mainstem Reservoir System





# Missouri River Mainstem Reservoir System

## 2011 Flood Regulation

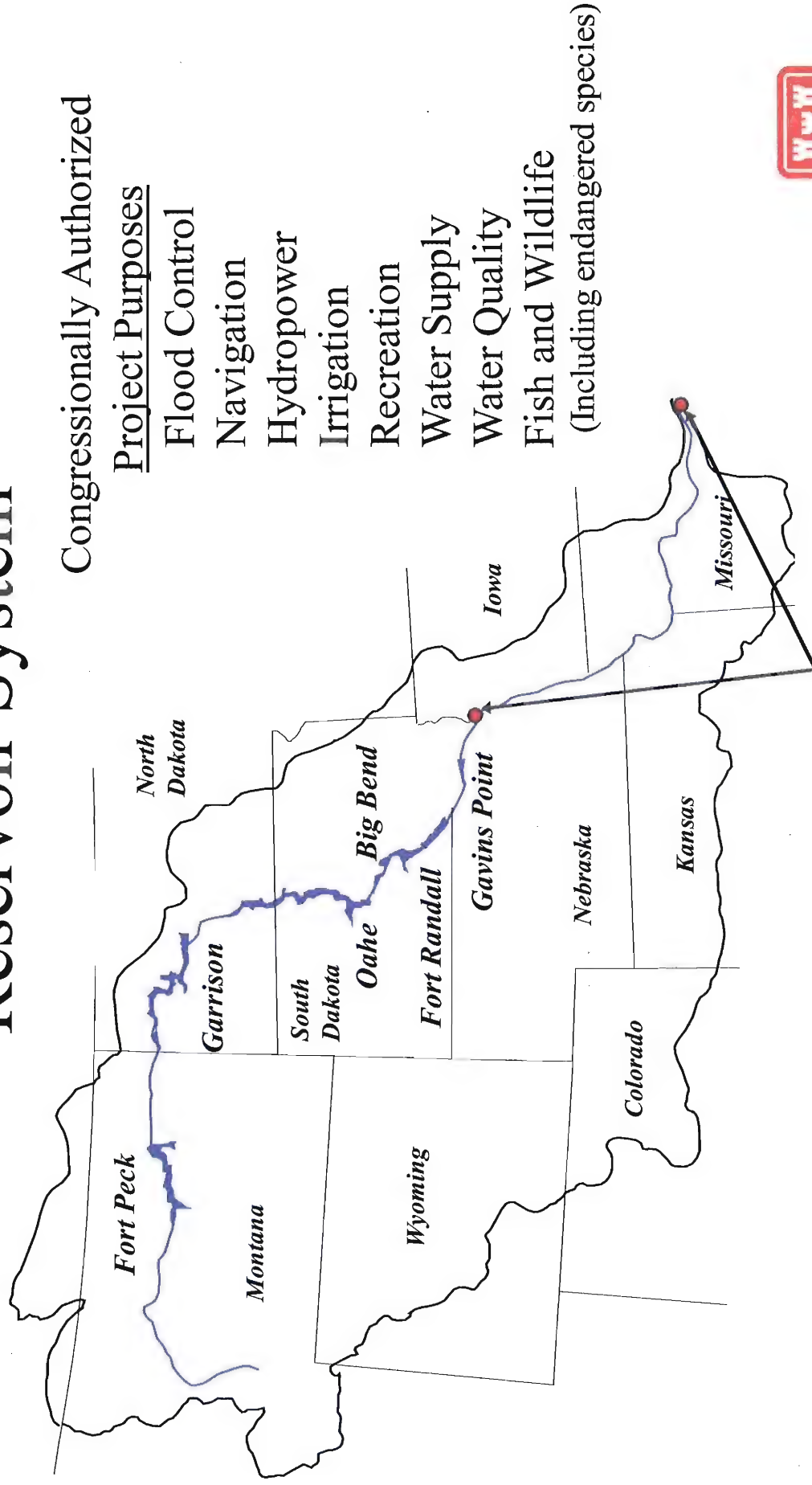


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US Army Corps of Engineers  
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# Missouri River Mainstem Reservoir System



**Bank Stabilization and Navigation Project**

**Sioux City, IA – St. Louis, MO BUILDING STRONG®**

# Storage Capacity of Corps Reservoirs

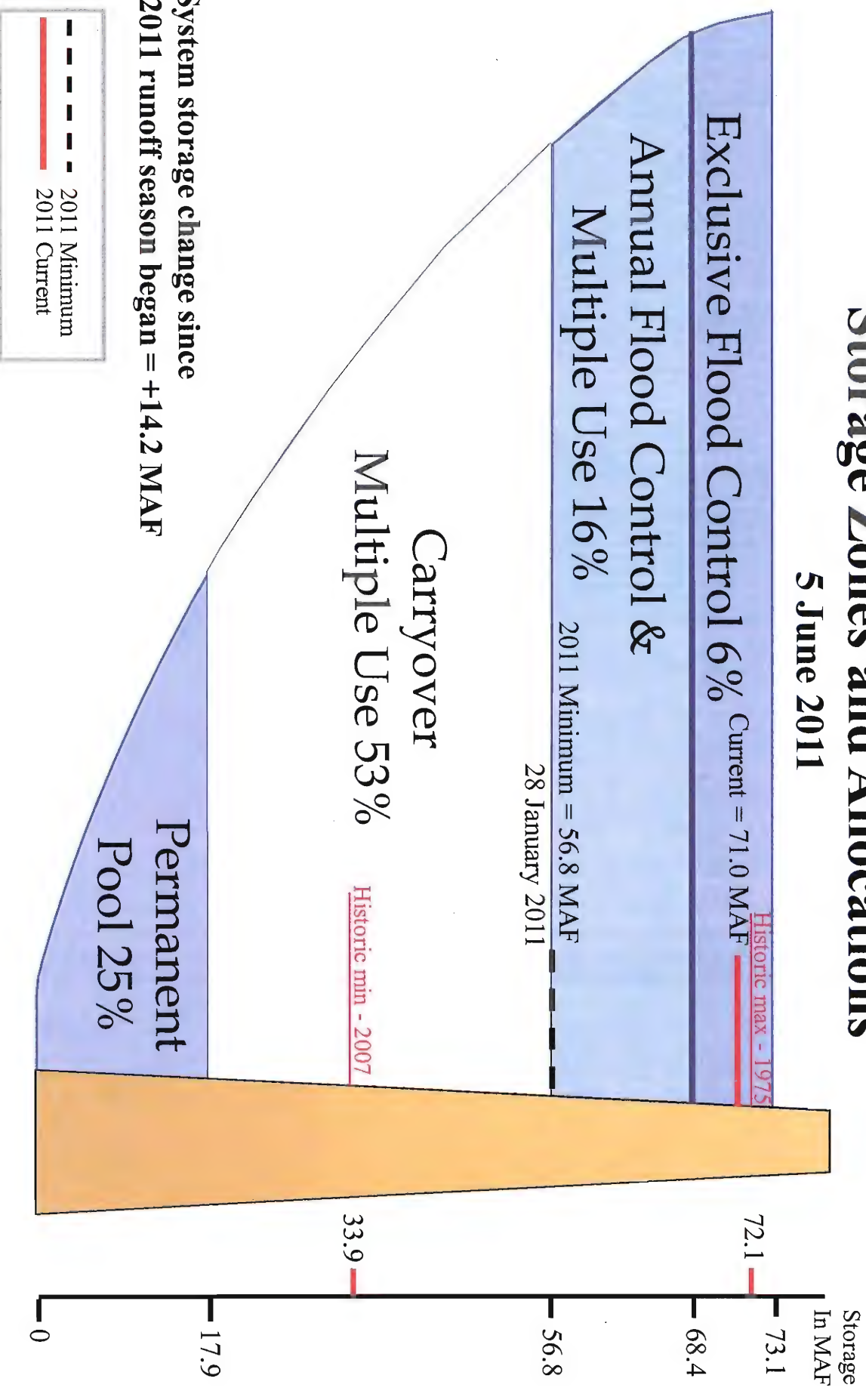


US Army Corps of Engineers  
**BUILDING STRONG**



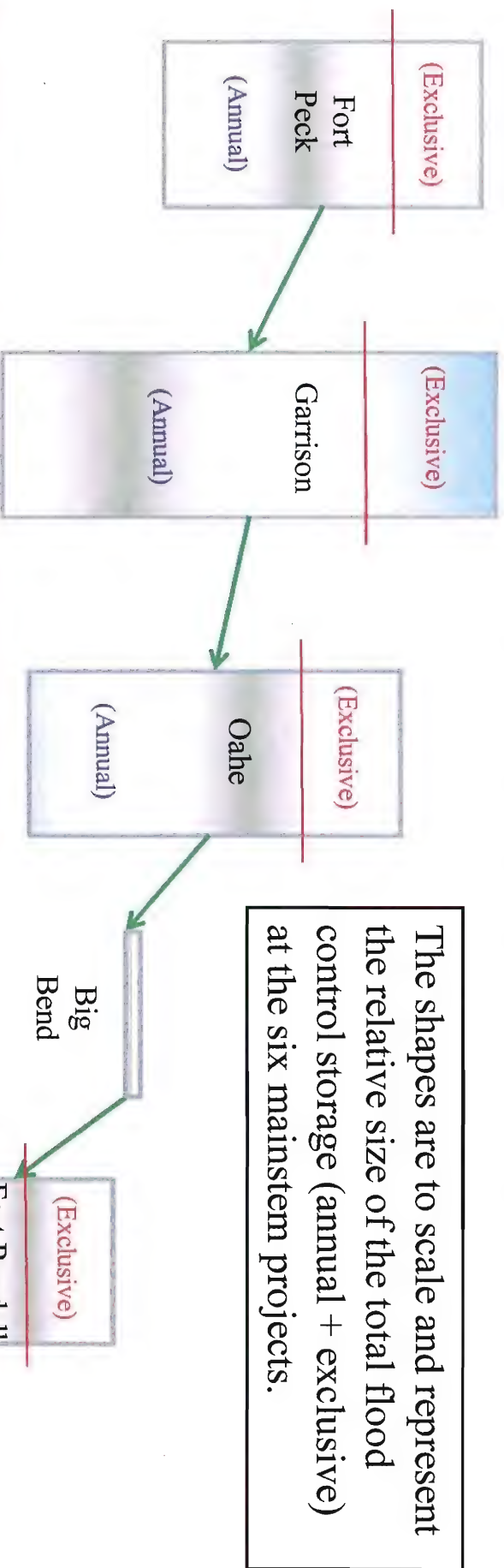
# Missouri River Mainstem System Storage Zones and Allocations

5 June 2011





# Flood Control Storage

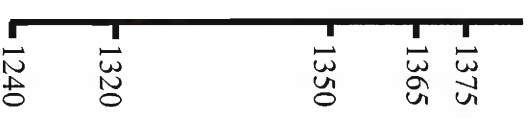
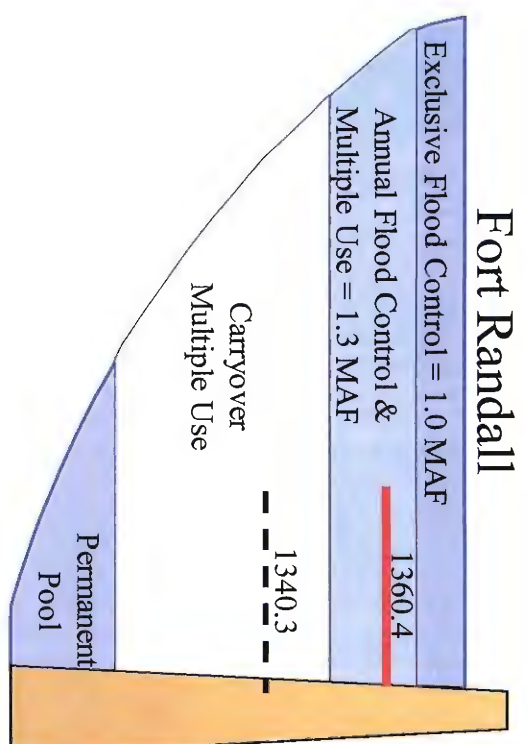
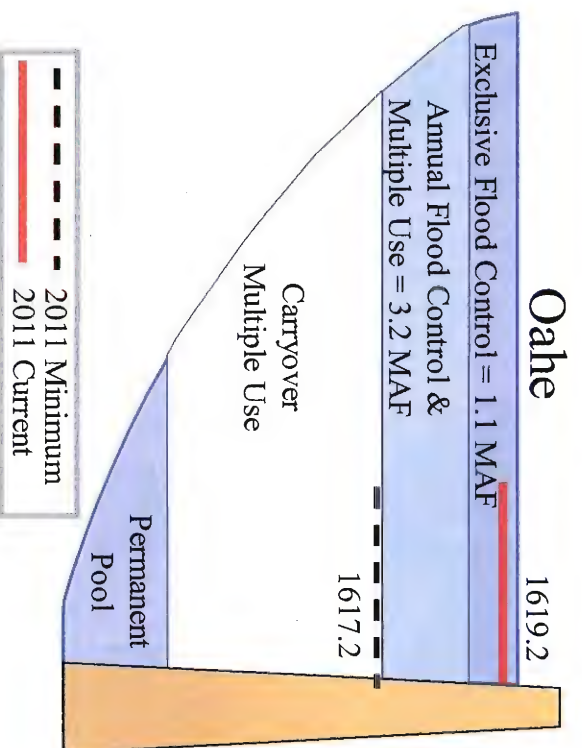
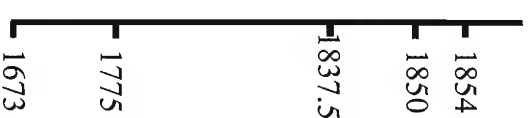
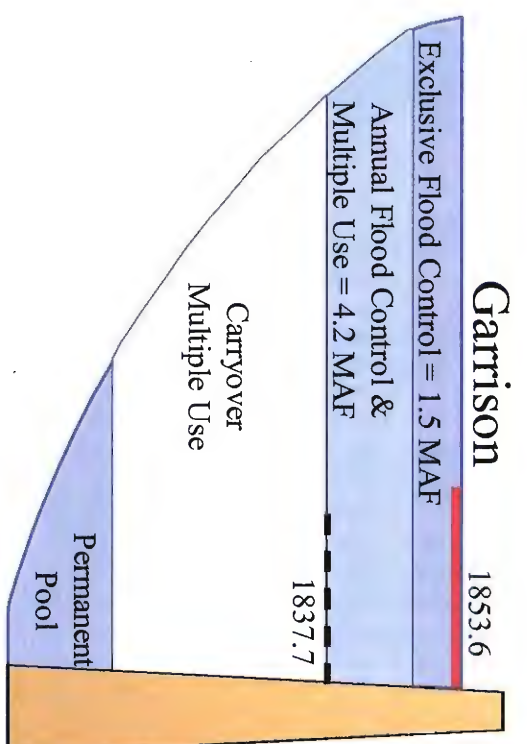
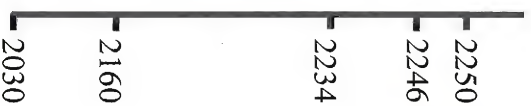
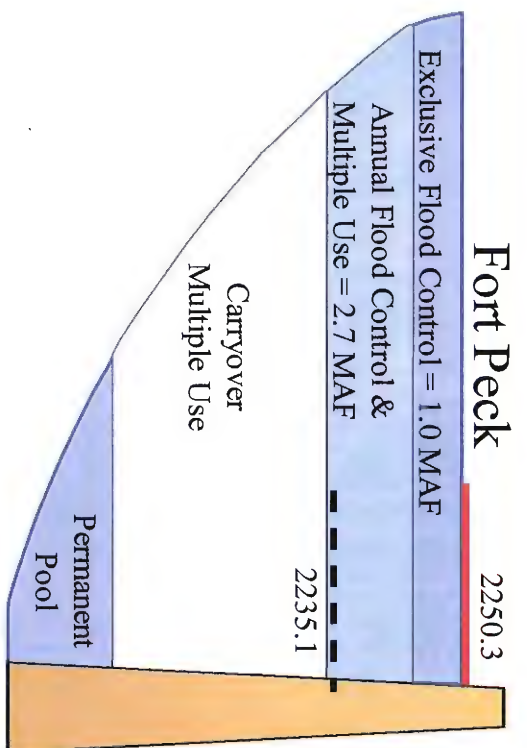


Project	Total Flood Control Storage (ac-ft)	% of Total Flood Storage
Fort Peck	3,675,000	22.6
Garrison	5,711,000	35.1
Oahe	4,303,000	26.5
Big Bend	177,000	1.1
Fort Randall	2,294,000	14.1
Gavins Point	108,000	0.7



# Mainstem Reservoir Levels

5 June 2011

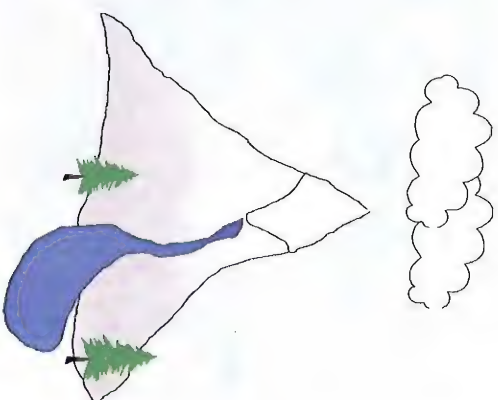


# Runoff Components

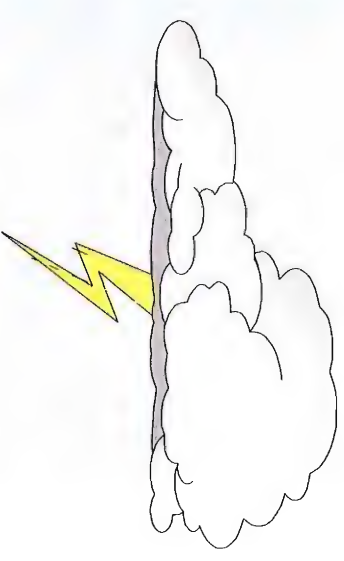
Plains Snowpack



Mountain Snowpack



Rainfall



March and April

May, June and July

March through October

2011 Forecast\* = 54.6 MAF

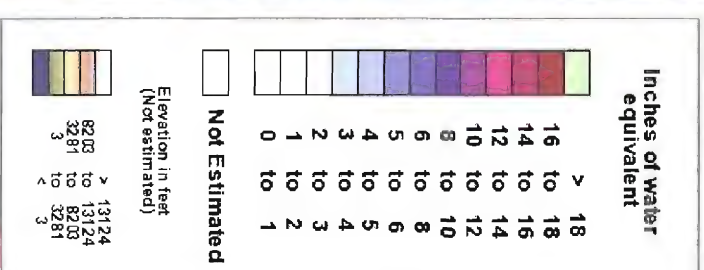
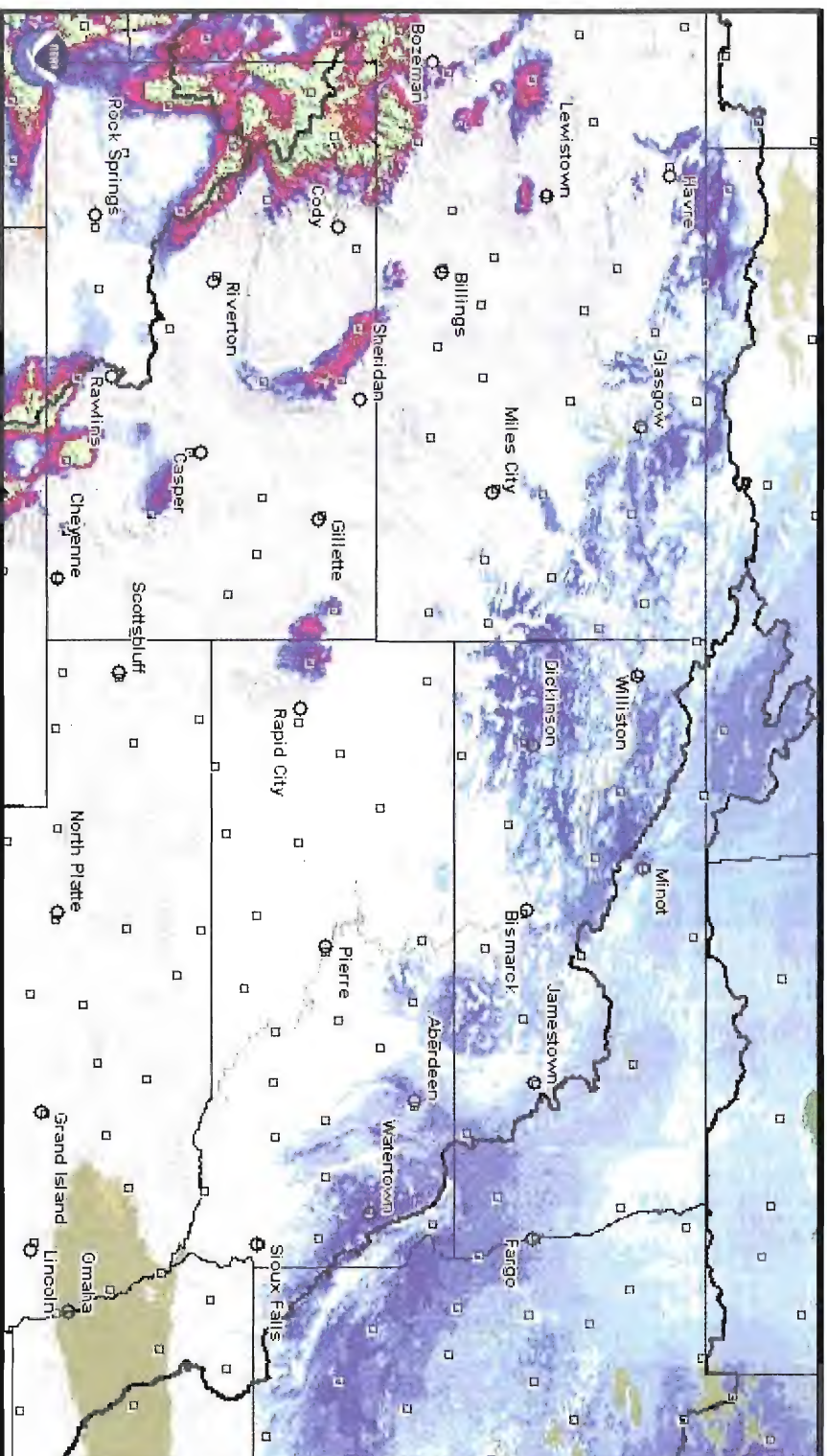
Highest runoff since 1898

Previous Record was 49.0 MAF in 1997



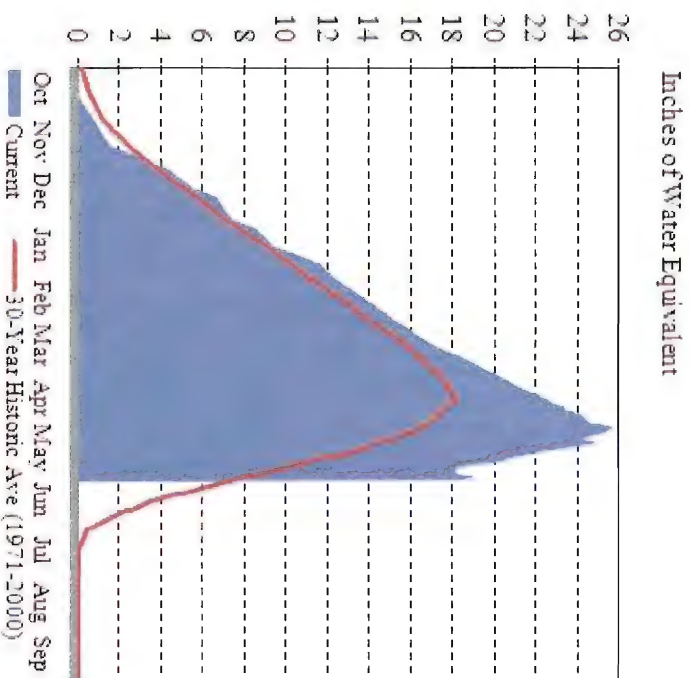
# Plains Snowpack

## 25 February 2011

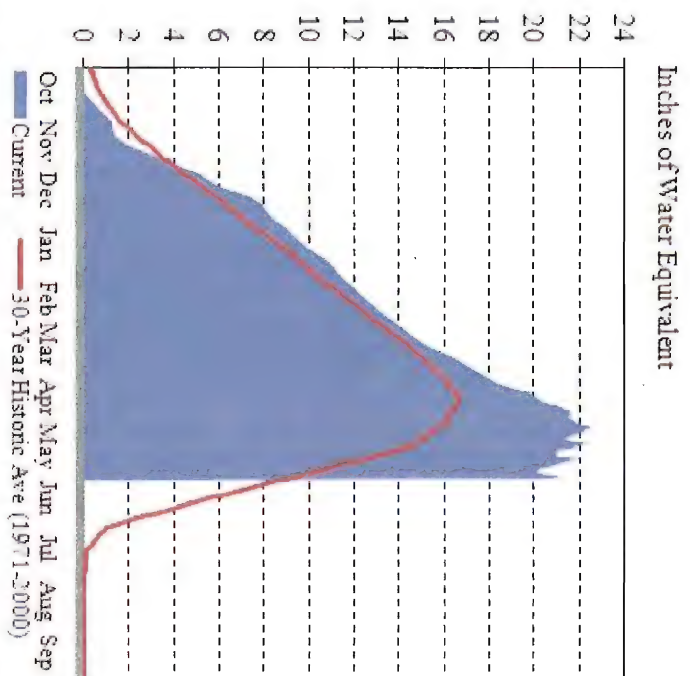


# Missouri River Basin Mountain Snowpack Water Content 2010-2011

Total above Fort Peck



Total Fort Peck to Garrison



The Missouri River Basin mountain snowpack normally peaks near April 15. The mountain snowpack in both the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches appears to have peaked on May 2 at 141 percent and 136 percent of the normal April 15 peak, respectively. The current mountain snowpack, as of June 2, is 100 percent and 124 percent of the normal April 15 peak in the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches, respectively.

June 2, 2011

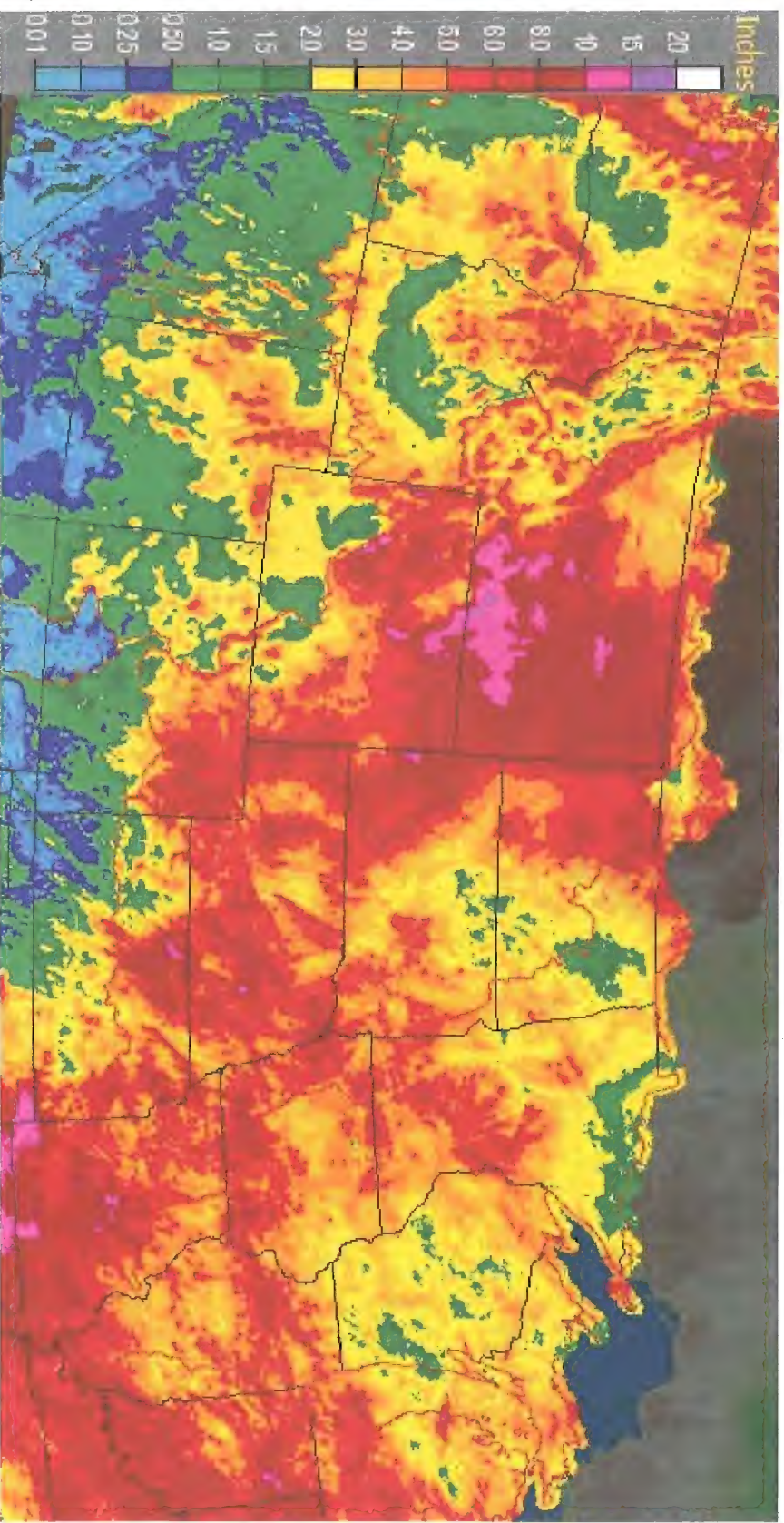
Provisional data. Subject to revision.



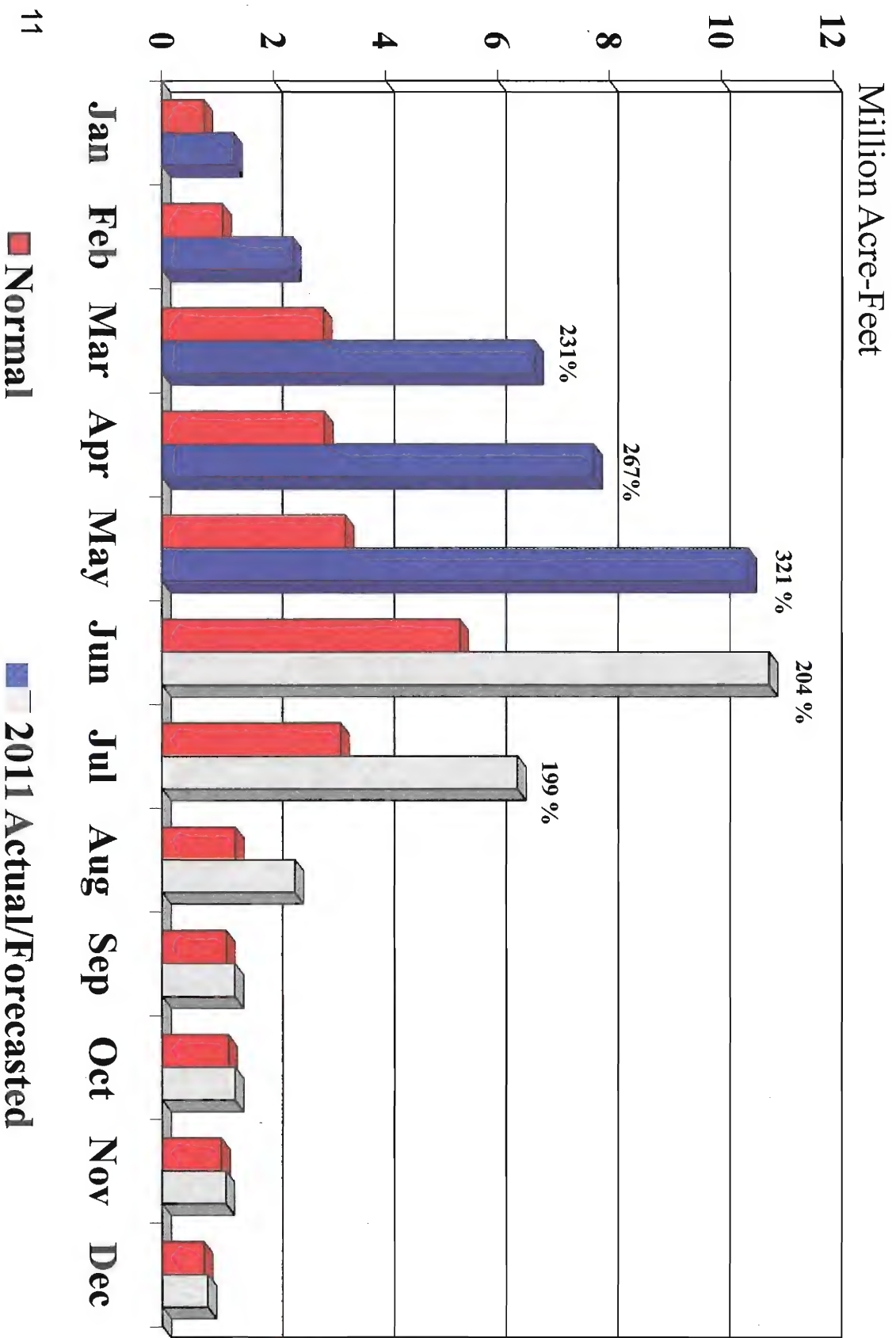


# May 2011 Precipitation

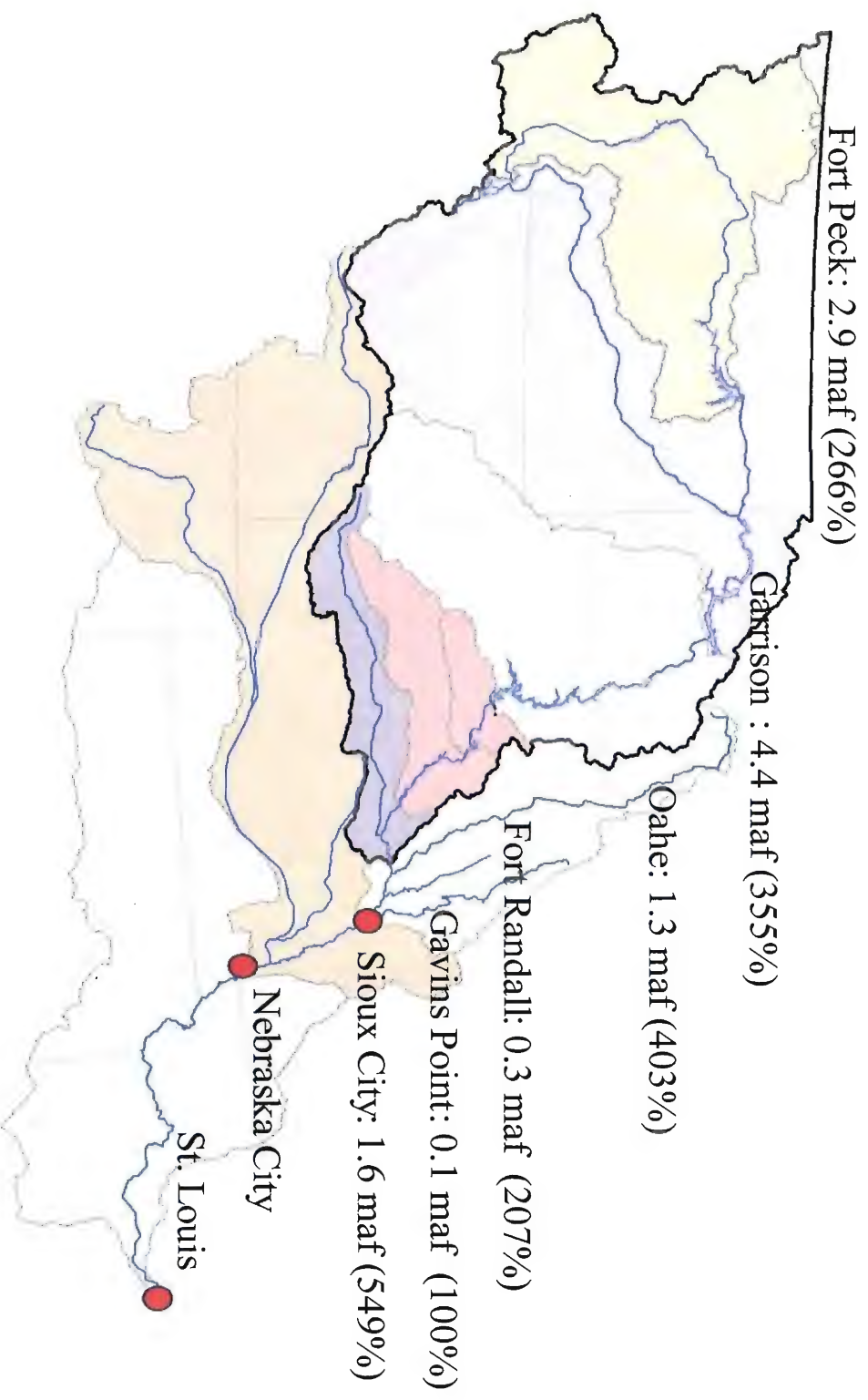
Missouri Basin RFC Pleasant Hill, MO: May, 2011 Monthly Observed Precipitation  
Valid at 6/1/2011 1200 UTC - Created 6/2/11 17:40 UTC



# Missouri River Runoff above Sioux City 2011 Actual/Forecasted versus Normal



# Missouri River Basin – May 2011 Runoff



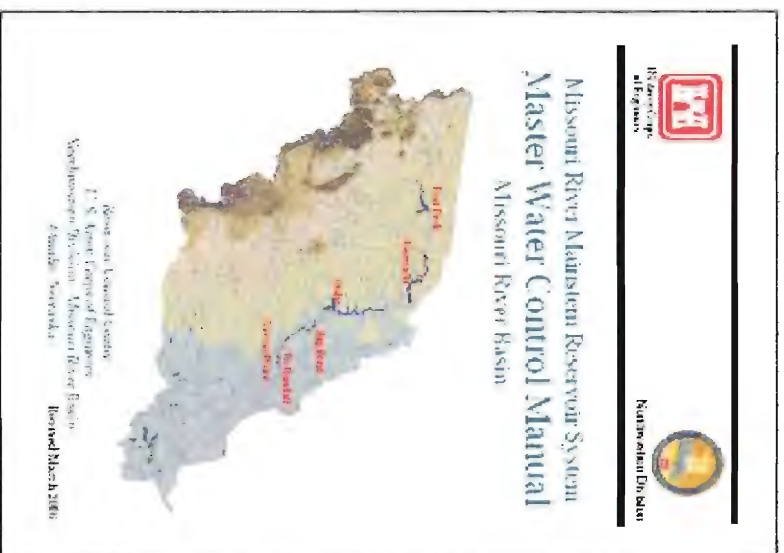


# Missouri River Mainstem Reservoir

## May 2011 Runoff

	<u>2011</u>	<u>Previous Record</u>
Fort Peck	2.9 MAF	2.6 MAF(1975)
Garrison	4.4 MAF	2.8 MAF(1978)
Fort Peck and Garrison	7.3 MAF	6.7 MAF(1952)
Total Above Sioux City	10.5 MAF	7.2 MAF(1995)

# Missouri River Mainstem Reservoir System Master Manual



- First published in 1960
- Updated in 1975 and 1979
- Master Manual Review and Update began in November 1989 in response to late 1980's / early 1990's drought
- Amended Biological Opinion received from USFWS in December 2003
- Manual was revised for drought conservation in March 2004
- Again revised in March 2006 for Gavins Point spring pulse
- Annual Operating Plan (AOP) developed annually in accordance with Master Manual

# 2011 Mainstem System Regulation

- Mainstem Reservoir System has been operated in accordance with the Master Manual
- Release schedules have been coordinated with LRD and MVD, but we do not have authority to regulate the mainstem reservoir system solely for the benefit of the Mississippi River
- No operational decisions have been driven by ESA (nesting least terns and piping plovers); reservoirs have been operating for flood risk reduction.



# 2011 Mainstem System Regulation

- Full flood control capacity of the mainstem reservoir system was available at the start of the 2011 runoff season
  - ▶ 2010 was 3<sup>rd</sup> highest runoff year on record
  - ▶ All flood water was evacuated prior to start of runoff
- High releases will continue through at least mid-August to evacuate stored flood water
  - ▶ Goal is to evacuate reservoirs to provide time for damage assessment and repair prior to next year's runoff season



# Background slides

- Photos of 6 mainstem dams



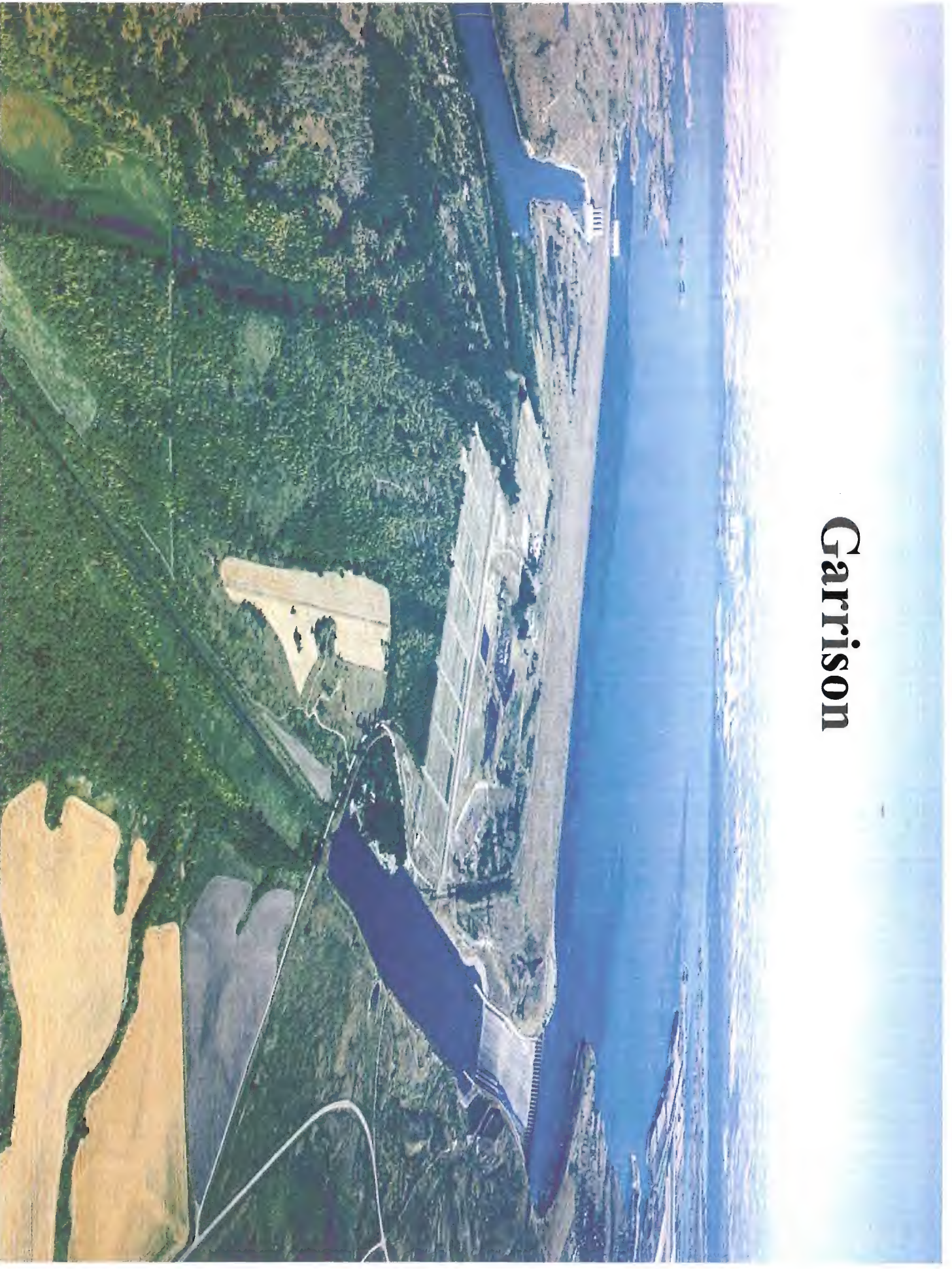


# Fort Peck





# Garrison





# Oahe





# Big Bend





# Fort Randall





# Gavins Point



[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 9:32 AM  
**To:** DLL-CENWO-OD-GA  
**Cc:** [REDACTED] NWD02; [REDACTED] HQ02; [REDACTED] NWO; Farhat, Jody S NWD02;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
NWO; [REDACTED] @ POD; [REDACTED] NWO  
**Subject:** Garrison Flood Fight Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-9 Garrison Flood Fight Daily Staff Notes.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

Today's report is attached...

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Thursday, June 09, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.21. Yesterday's elevation: 1853.41  
Top of Exclusive Flood Control Zone: 1854.0
  - Current Tail water Elevation 1683.50. Yesterday's elevation 1683.25
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1687.5
  - Estimated Inflows 115,000 cfs, Releases: 130,000 cfs
  - Release Schedule: Hold 130,000 cfs today. Increase to 135,000 cfs on Friday, 140,000 on Monday. Goal remains 150,000 cfs.
  - All 28 spillway gates are open one foot. Gate #14 is open approximately 2 feet.
  - Current release distribution: Power Plant - 30,000 cfs, Regulating Tunnels – 70,000 cfs, Spillway – 30,000 cfs.
- Fort Peck Releases are increasing to 55,000 cfs today and will be increased to 60,000 cfs on Friday, June 10<sup>th</sup>, due to higher than forecasted runoff and recent precipitation in that basin above Fort Peck.
- Missouri River Elevations:
  - Bismarck gage: Currently 17.46 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 28.03 feet, forecasted to go to 29.1 feet by Monday. Previous record stage: 28.0 feet.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, Ross Cullin; cell: (402) 209-1196)
  - No major issues reported.
  - An inspection of the rip rap on the upstream side of the Garrison dam was performed yesterday, no significant issues were noted.
  - Surveillance crews are now split. Day shift working from 0500 to 1500; Night shift from 1400-2400. We will have a daily shift change meeting at 1400 hours.
- Instrumentation (Team Leader Beth Utecht; cell: (701) 400-6451)
  - No issues reported.
- Conservancy District is wrapping up stabilization of right and left banks on the tailrace. They will stockpile materials along the tailrace today. POC, Pem Hall, cell (701) 315-0330.
  - Also stabilizing the West Tailrace road so it is available for future maintenance. This road will remain closed to the public for the foreseeable future.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:

- Inspection of both sides of embankment was performed yesterday. No significant issues were noted.
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED], cell: (605) 260-8112 or [REDACTED], cell: (701) [REDACTED]
- The boils at Williston are still flowing clear water. Still attempting to locate contractors to bid additional preparatory work.
- Shannon is pursuing installation of oil coolers for the hydraulic fluid on the new pumps.

#### **Natural Resources:**

- POC's [REDACTED], cell: [REDACTED]
- East Diagonal road will be staffed by the Sheriff's Department from 6:00 am until 6:00 pm. West Diagonal will remain closed. All employees are to carry an orange "USACE Employee" sign for identification. All government vehicles working around the dam should have magnetic USACE Emergency Management placards and/or light bars.
- NR's will be providing Visitor Assistance at the Spillway overlook weekdays, from 8:30 am to 8:00 pm, and weekends from 8:00 am until 10:00 pm. Hours may vary dependent upon weather and actual visitation.
- East diagonal gate will only be staffed from 0600-0800 hours on Saturday and Sunday. Employees will need to utilize keys for access.
- DOT installed 25 mph signs and flashing pedestrian lights at the spillway overlook area. This will help tremendously. Still assessing the need for similar signage at the tailrace overlook. State DOT did not want to install signage at that location.

#### **Outside Maintenance:**

- Everyone needs to be aware that the temporary water line installed across the spillway bridge and down the East side of the dam (West of the spillway area) is now operational. Any signs of leakage in this line must be reported immediately. Notify your supervisor, Chuck Phelps, or I. Also need to notify the City of Riverdale, call "Clay" at (701) 471-6433. There are shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.
- Will work to install a drain tile with filter fabric and place spalls to repair the area which eroded at the west wing-wall of regulating tunnel #8.

#### **Power Plant:**

- A camera to monitor the spillway, from the power plant room, should be operational today.

- Wave action in the tailrace is now hitting the stop logs. They are in the up and “dogged” position. Power plant will monitor this for any damage to the stop log guides.

#### **Weather/Safety:**

Today for Riverdale: Considerable cloudiness. High 63F. Winds N at 10 to 20 mph. Chance of Precip: 10%	Tonight for Riverdale: Partly cloudy skies. Low 43F. Winds ENE at 5 to 10 mph. Chance of Precip: 20%	Tomorrow: Partly cloudy skies in the morning will give way to cloudy skies during the afternoon. High 64F. Winds ESE at 10 to 20 mph. Chance of Precip: 10%
--	---	---

- I need a “volunteer” to prepare a formal evacuation plan for our personnel and operations immediately downstream of Garrison Dam, as well as at the Williston Levee. Looking for volunteers, I have examples to follow.
- NR’s is coordinating a “check-in/check-out” procedure for personnel coming to assist us. We need to coordinate vehicles, keys, cell phones, USACE placards, etc. Once established, we may transition this function to Admin folks in Riverdale?

#### **Needed Resources:**

- I did not get the staffing plan finished yesterday. It’s on today’s priority list...
- [REDACTED] ordered six additional “Road Closed” signs, stands, lights and extra batteries.
- Light bars for all vehicles working on the dam are on order. Rangers will utilize red light bars for controlling traffic. All others will be yellow.
- Pem Hall working to quantify amount of rock needed to replenish emergency stockpiles.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell: [REDACTED])  
[REDACTED] Home: [REDACTED]

#### **OPM Notes:**

- Flood team meetings every morning at 0700 hours in the Outside Maintenance Building. Attendance by a representative from each Section working flood duties is expected.
- I expect all gate changes to be performed at the scheduled times and that I will be notified by the operator, directly, when they are occurring. This is important for a number of reasons. First, we are telling the public, and reporters, when changes will be made. i.e. our credibility is being scrutinized. Second, we may be coordinating downstream activities which need to be aware of changes and lastly, I want to double check that the changes are accurate. There is simply too much at stake to make a mistake in our releases or timing of those releases.

#### **Garrison Project Facts:**

- Top of Spillway Gates is elevation 1854 msl.

- Top of Dam is elevation 1875 msl.
- Exclusive flood control zone is elevation 1850-1854. We try to evacuate water from that zone as quickly and safely as possible.



**Subject:** Pre-recorded radio interview re: Mo River releases (KQKQ) (UNCLASSIFIED)  
**Location:** Your Office

**Start:** Thu 6/9/2011 12:30 PM  
**End:** Thu 6/9/2011 1:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Farmer, Monique L NWO  
**Required Attendees:** Farhat, Jody S NWD02

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Josh Nelson of KQKQ wants to do a pre-recorded radio interview about the status of the river and what people should expect once we get to 150,000 cfs.

Do you have time for this tomorrow? Should only take about 10 minutes. Details on the station below. Even a podcast.

MF

PODCASTS OF THE MORNING SHOW: <http://q985fm.com/pages/9055020.php>  
<<http://q985fm.com/pages/9055020.php>>

#### EDITORIAL PROFILE/BACKGROUND

KQKQ-FM 98.5 is a commercial Hot Adult Contemporary music station in the Omaha, Neb. area. Its signal reaches parts of Iowa and Missouri with a coverage area that includes Fremont, Council Bluffs, Blair, West Point, Lincoln, Red Oak, Harlan, Nebraska City, Onawa, Missouri Valley, Denison, Atlantic, Seward, Clarinda and Columbus. It is owned by Waitt Omaha LLC and operated by NRG Media. KQKQ-FM uses the tagline "Q98.5" and the slogan "Modern Hit Music That Matters."

#### PUBLICATION/PROGRAMMING INFORMATION

The station broadcasts 24 hours a day, seven days a week.

#### CONTENT SOURCES

Most of the station's programming is locally produced and music-intensive.

#### TARGET AUDIENCE

KQKQ-FM targets listeners between the ages of 18 and 49.

#### PITCHING INSTRUCTIONS

The station accepts public service announcements. Fax written copy to the station's main fax number. Send pre-recorded taped spots to the station's main address.

Sister stations include KBLR (FM-97.3), KCTY (FM-106.9), KKAR (AM-1290), KOIL (AM-1020), KOZN (AM-1620) and KYDZ (AM-1180).

**OUTLET STATISTICS**

Channel/Frequency: 98.5

Power: 100,000

Call Letters: KQKQ

Station Format: Hot Adult Contemporary

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 09, 2011 8:37 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
**Subject:** NWD02; [REDACTED] NWO  
RE: Mainstem data for NWO sitrep 6/9/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/8 Pool Elev: 2251.1 ft-msl

24-hr change: 0.2'

6/8 Ave Inflow: 79,000 cfs

6/8 Ave Release: 50,700 cfs

6/9 Scheduled Release: 55,000 cfs

Garrison Dam (ND)

6/8 Pool Elev: 1853.2 ft-msl

24-hr change: -0.2

6/8 Ave Inflow: 115,000 cfs

6/8 Ave Release: 130,800 cfs

6/9 Scheduled Release: 130,000 cfs

Oahe Dam (SD)

6/8 Pool Elev: 1618.9 ft-msl

24-hr change: -0.2'

6/8 Ave Inflow: 132,000 cfs

6/8 Ave Release: 150,700 cfs

6/9 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/8 Pool Elev: 1419.3 ft-msl

24-hr change: -0.4'

6/8 Ave Inflow: 148,000 cfs

6/8 Ave Release: 148,400 cfs

6/9 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/8 Pool Elev: 1361.3 ft-msl

24-hr change: 0.5'

6/8 Ave Inflow: 155,000 cfs

6/8 Ave Release: 137,000 cfs

6/9 Scheduled Release: 140,000 cfs

Gavins Point Dam (NE-SD)

6/8 Pool Elev: 1207.2 ft-msl

24-hr change: 0.4'

6/8 Ave Inflow: 141,000 cfs

6/8 Ave Release: 135,600 cfs

6/9 Scheduled Release: 140,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** Ruch, Robert J COL NWO  
**Sent:** Thursday, June 09, 2011 8:29 AM  
**To:** McMahon, John R BG NWD; Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD  
**Subject:** RE: WAPA Regulating plant

Sir,

We are checking this with Jody's and company this morning. We spoke with them last week and WAPA was going to transfer load issues by cutting wind power and using non USACE plants. Greg Mellema is running this to ground this morning. We may need help if they don't budge, but let us take a swing first.

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 08, 2011 10:59 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Ruch, Robert J COL NWO  
**Subject:** WAPA Regulating plant

Jody/[REDACTED]:

Discussed the Oahe release situation with OPM Eric Stasch today and believe he/we had an expectation from WAPA that Oahe would not continue this role past a few days ago--what's supposed to be happening? Does it matter? Should I get engaged with WAPA? Please advise.  
Thanks.

Vr/John McMahon

She made it very clear this is not an ambush; this is intended to be an opportunity for USACE to set the record straight and explain our function and process of doing things. She also made it clear that this was NOT a public meeting, not an ambush and we will have a list of attendees in advance.

Please let me know if you have any other questions or concerns you would like to relay. I'm happy coordinate further with Melissa.

V/R,

Amy E. Blair  
Outreach Specialist  
Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>  
Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
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Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 09, 2011 8:23 AM  
**To:** McMahon, John R BG NWD; Stockton, Steven L HQ02  
**Cc:** Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; Ruch, Robert J COL NWO; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Hofmann, Anthony J COL NWK; Tipton, Robert A Col NWD; [REDACTED] NWD; [REDACTED] NWD; Farmer, Monique L NWO; [REDACTED] NWD  
**Subject:** RE: Meeting with NW Delegation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Steve, the points you note are included in the various external interface activities that are on-going; we will continue to reinforce them and develop more opportunities to emphasize the message.

One action in the works is a press conference to address the basin/full river length - NWO/NWK - aspect of the situation and operation, including extreme hydrology experienced this year, upstream reservoirs operation, flood fight efforts, etc. More to come on that.

VR  
[REDACTED]

-----Original Message-----

**From:** McMahon, John R BG NWD  
**Sent:** Thursday, June 09, 2011 5:53 AM  
**To:** Stockton, Steven L HQ02  
**Cc:** Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD; Ruch, Robert J COL NWO; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Hofmann, Anthony J COL NWK; Tipton, Robert A Col NWD; [REDACTED] NWD; [REDACTED] NWD  
**Subject:** Re: Meeting with NW Delegation (UNCLASSIFIED)

Roger--will see what we can do on this--thanks.  
Vr/John

----- Original Message -----

**From:** Stockton, Steven L HQ02  
**To:** McMahon, John R BG NWD  
**Cc:** Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD; Ruch, Robert J COL NWO; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
**Sent:** Thu Jun 09 04:46:58 2011  
**Subject:** RE: Meeting with NW Delegation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

John,  
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- >We are operating IAW the MR Master manual which took XX years to complete and was developed with much public input to balance all the competing uses.
- >Describe choices we made and why we did during the current event.

Need to get the facts out early and often and incorporate into all our stratcoms, TP's, FAQ's and public engagements.

Again, great job to you and your team.

[REDACTED]  
[REDACTED]  
Director Civil Works, USACE  
(W) ([REDACTED])  
(Cell) ([REDACTED])  
[REDACTED]@us.army.mil

-----Original Message-----

From: McMahon, John R BG NWD  
Sent: Wednesday, June 08, 2011 11:58 PM  
To: Temple, Bo M MG HQ02; [REDACTED] HQ02; Stockton, Steven L HQ02  
Cc: Kunkel, Jodie L CPT HQ02; Ruch, Robert J COL NWO; [REDACTED] NWD; [REDACTED] HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
Subject: Re: Meeting with NW Delegation (UNCLASSIFIED)

Roger, Sir. MTF.  
Vr/John

---

From: Temple, Bo M MG HQ02  
To: [REDACTED] HQ02; Stockton, Steven L HQ02  
Cc: Kunkel, Jodie L CPT HQ02; McMahon, John R BG NWD; Ruch, Robert J COL NWO; [REDACTED] NWD; [REDACTED] HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
Sent: Wed Jun 08 18:36:17 2011  
Subject: Re: Meeting with NW Delegation (UNCLASSIFIED)

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John and Teammates, thanks for all the prep for this, but more importantly, thanks for all your hard work in mitigating the effects of this flood along the Missouri.

Ref Sen Johanns Para 1, use of these large grain sacks as sand bags should be watched and if they perform adequately, we may have found a new source of flood barrier material. Paras 4 and 5 are related to a question that I said may not have a clear answer, that is what percentage of the flood is normal plains runoff, the 8" rainstorm, and the snowmelt. Not sure why this was of interest, but everyone acknowledged that this flood is unusual in that includes all three elements nearly simultaneously.



Ref Sem Moran, Para1, please ensure he (and we) know the status of the levee vic the Fairfax industrial area near Kansas City.

See the Sen Hoeven tasker near the bottom. Thanks!

---

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Cc: Kunkel, Jodie L CPT HQ02; McMahon, John R BG NWD; Ruch, Robert J COL NWO; [REDACTED] NWD; [REDACTED] HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02

Sent: Wed Jun 08 18:54:17 2011

Subject: Meeting with NW Delegation (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

When: Wednesday, 8 June - 1430-1530

Who: SENS John Thune (SD), Mike Johanns (NE), Jerry Moran (KS), John Hoeven (ND) (plus multiple staff members, including from REP Noem's office)

What: Flooding in the Northwest

General notes:

All members were supportive of the Corps and understood the situation and dilemma for the Corps in managing the system.

General statements/questions and answers:

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2. He also mentioned the releases - could we explain how the system was managed in the Winter/Spring.

MG Temple discussed our releases in March - how we drew down to maximum flood capacity - anticipating the greater than normal snowpack. Saw some snow melt and then the 8 inches of rain.

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1. Concerned that the Corps do all it can do to assist.

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1. Questioned whether or not the Master Manual may need to be reviewed/revised?

Discussed the fact that we will certainly look at the manual, as we do every year. If adjustments need to be made - we will look to make them.

2. Discussed the buyouts after the 93 flood - \$35 million authorization - would we participate/recommend something like this.

Discussed the fact that we would be part of the team, as we would have the forensics after the flood - work with DHS, FEMA, HUD, etc.

SEN Johanns wanted to make sure that if there were updates/changes to the Master Manual that the Corps has committed to including all stakeholders (of course).

MG Temple also discussed that we need to look at what we can do better as a Nation - to buy down risk. Certainly dams and levees are part of the solution, but they are not everything.

SEN Thune - asked how influential is Fish and Wildlife would be if there were updates to the manual. We discussed the multi-purposes of the system and all must be balanced. SEN Thune suggested that if the Corps needed assistance to lessen such influence (including legislation) they were willing to help. MG Temple stated that he did not see this as a problem - it is a balancing issue, but thought all would work together.

SEN Hoeven - talked about FEMA requiring flood insurance to be 30 days before the "flood event." They have been working with FEMA to change the date requirement.

DUE OUT - Corps needs to work with FEMA on this and get back to his office (not sure what we can tell him here - since it appears to me (I could be wrong) that this is a FEMA determination. Thoughts?

He also mentioned the oil/gas issue charging for storage. MG Temple did not engage.

v/r Jen

[REDACTED]  
Chief, Future Directions Branch/Civil Works

[REDACTED] (desk)

[REDACTED] (cell)

202-761-4370 (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** McMahon, John R BG NWD  
**Sent:** Thursday, June 09, 2011 7:53 AM  
**To:** [REDACTED] HQ02  
**Cc:** Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD; Ruch, Robert J COL NWO; [REDACTED] HQ02; [REDACTED] L HQ02; Smith, Thomas P COL HQ02; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Hofmann, Anthony J COL NWK; Tipton, Robert A Col NWD; [REDACTED] NWD; Hearn, James J NWD  
**Subject:** Re: Meeting with NW Delegation (UNCLASSIFIED)

Roger--will see what we can do on this--thanks.  
Vr/John

----- Original Message -----

**From:** [REDACTED] HQ02  
**To:** McMahon, John R BG NWD  
**Cc:** Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD; Ruch, Robert J COL NWO; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
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[REDACTED]  
[REDACTED]  
Director Civil Works, USACE  
(W) ([REDACTED])  
(Cell) ([REDACTED])  
[REDACTED]@us.army.mil

-----Original Message-----

From: McMahon, John R BG NWD  
Sent: Wednesday, June 08, 2011 11:58 PM  
To: Temple, Bo M MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Cc: Kunkel, Jodie L CPT HQ02; Ruch, Robert J COL NWO; [REDACTED] t NWD; Arthur, Marie R HQ02; MacDonald, Glen A MAJ HQ; Stokes, Debra J HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
Subject: Re: Meeting with NW Delegation (UNCLASSIFIED)

Roger, Sir. MTF.  
Vr/John

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Cc: Kunkel, Jodie L CPT HQ02; McMahon, John R BG NWD; Ruch, Robert J COL NWO; [REDACTED] NWD; [REDACTED] R HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02; [REDACTED] HQ02; Smith, Thomas P COL HQ02  
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2. Discussed the buyouts after the 93 flood - \$35 million authorization - would we participate/recommend something like this.

Discussed the fact that we would be part of the team, as we would have the forensics after the flood - work with DHS, FEMA, HUD, etc.

SEN Johanns wanted to make sure that if there were updates/changes to the Master Manual that the Corps has committed to including all stakeholders (of course).

MG Temple also discussed that we need to look at what we can do better as a Nation - to buy down risk. Certainly dams and levees are part of the solution, but they are not everything.

SEN Thune - asked how influential is Fish and Wildlife would be if there were updates to the manual. We discussed the multi-purposes of the system and all must be balanced. SEN Thune suggested that if the Corps needed assistance to lessen such influence (including legislation) they were willing to help. MG Temple stated that he did not see this as a problem - it is a balancing issue, but thought all would work together.

SEN Hoeven - talked about FEMA requiring flood insurance to be 30 days before the "flood event." They have been working with FEMA to change the date requirement.

DUE OUT - Corps needs to work with FEMA on this and get back to his office (not sure what we can tell him here - since it appears to me (I could be wrong) that this is a FEMA determination. Thoughts?

He also mentioned the oil/gas issue charging for storage. MG Temple did not engage.

[REDACTED]

[REDACTED]

Chief, Future Directions Branch/Civil Works

[REDACTED] (desk)

[REDACTED] (cell)

[REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

From: [REDACTED] HQ02  
Sent: Thursday, June 09, 2011 7:34 AM  
To: [REDACTED] NWO; Farhat, Jody S NWD02  
Subject: RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Right on, concur with your comments, just verifying

-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 09, 2011 7:32 AM  
To: [REDACTED] HQ02; Farhat, Jody S NWD02  
Subject: RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

I agree with Jody's comments. The USGS develops the rating curve and the NWS makes the decision when to adopt a new curve.

Just an FYI, while the rating curve is currently tracking below the original projections (a good thing), we need to be cautious about relying on the rating curve to be stable. We don't know how the curve will react when we get a surge from the Heart River, or if there will be an upward shift once the water warms up.

[REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 08, 2011 7:02 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Subject: RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 08, 2011 7:01 PM  
To: [REDACTED] HQ02; [REDACTED] NWO  
Subject: RE: For your review (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The reservoir pool information and releases are correct as is the statement regarding Fort Peck releases. You would have to check with the RFC regarding the statement about the shift in the rating curve.

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 8:05 AM  
**To:** [REDACTED] NWO  
**Subject:** RE: Congressman Terry - Brief (UNCLASSIFIED)  
**Attachments:** Sen-Nelson\_5\_Jun\_2011 JSF.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - here is my updated slide for the Terry Brief. Thanks, Jody

-----Original Appointment-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 1:18 PM  
**To:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; [REDACTED] NWO; Blechinger, Erik T NWO; [REDACTED] NWO; Thomas, Kimberly S NWO; [REDACTED] NWO; [REDACTED] NWO; Ruch, Robert J COL NWO; [REDACTED] NWO  
**Subject:** Congressman Terry - Brief (UNCLASSIFIED)  
**When:** Friday, June 10, 2011 10:30 AM-11:30 AM (GMT-06:00) Central Time (US & Canada).  
**Where:** EOC

Classification: UNCLASSIFIED  
Caveats: NONE

Congressman Terry - Brief will be at 1030 in the EOC

Slides from the Senator Nelson brief are attached. We will use the same set up as before. Please have you slides to the EOC by 930 tomorrow morning.

Classification: UNCLASSIFIED  
Caveats: NONE

<< File: Sen-Nelson\_5\_Jun\_2011.pptx >>

Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Regulation

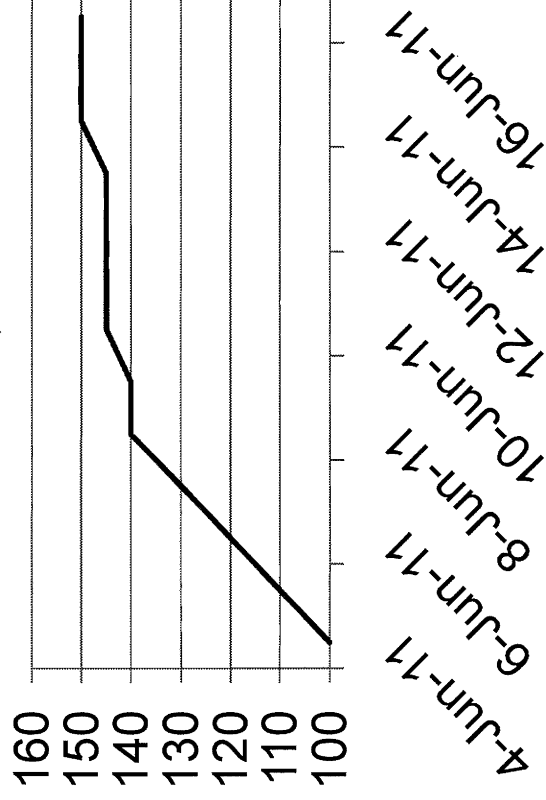
## Jody Farhat – Chief Missouri River Basin Water Management



# Current Conditions and Forecast

- ▶ Gavins Point – forecast updated daily
  - 145,000 cfs – today -13 June
  - 150,000 cfs – 14 June...
- ▶ Peak releases will continue well into August

**Gavins Release**



**E [REDACTED] NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 3:41 PM  
**To:** Wingert, Kevin M NWO; [REDACTED] NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** RE: Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Check with [REDACTED] first in case hydro branch has some information. If not, have them contact the National Weather Service Missouri Basin River Forecast Center. They are the official river stage forecasters for the basin.

Jody

-----Original Message-----

**From:** Wingert, Kevin M NWO  
**Sent:** Friday, June 10, 2011 3:37 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody/[REDACTED]

Dave Cline of Shannon & Willson called 3:10 p.m. on Friday, June 10, 2011.

Cline represents railroad interests operating in and near the Yellowstone River. They are looking for a subject matter expert on projected flows of the Yellowstone River several weeks out (they have found the Advanced Hydrologic Prediction Service predictions for a week out but are looking further in the future to plan any necessary mitigation efforts).

Is there an SME who might be able to call Dave Cline of Shannon & Wilson at 206-695-6885 or [drc@shanwil.com](mailto:drc@shanwil.com)? Thanks.

Very Respectfully,

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 5:10 PM  
**To:** [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: Releases at Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

150,000 remains the peak release from Gavins Point. We have no plans to go higher.

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Friday, June 10, 2011 4:37 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** Releases at Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I have fielded about 5 questions today from folks who said they heard we were planning a 160-170 release at Gavins. Need confirmation of forecast in case I am asked in a press conference in the morning.

[REDACTED]  
[REDACTED]  
[REDACTED]  
CENWO-ED-HF  
Omaha District, USACE  
402-[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 5:11 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** FW: Hang in there - (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

From: [Michael Olson@fws.gov](mailto:Michael.Olson@fws.gov) [mailto:Michael.Olson@fws.gov]  
Sent: Friday, June 10, 2011 4:34 PM  
To: Farhat, Jody S NWD02  
Subject: Re: Hang in there - (UNCLASSIFIED)

We've evacuated. No worries - its just a house. If in the end its purpose was to donate itself to the cause of better local, state and federal river policy I can't think of a higher cause for a piece of property

Mike

----- Original Message -----

From: "Farhat, Jody S NWD02" [Jody.S.Farhat@usace.army.mil]  
Sent: 06/10/2011 03:44 PM EST  
To: Michael Olson  
Subject: RE: Hang in there - (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks Mike. It's an incredible event. We'll have a changed river when it's all over.

Is the flooding impacting your home? If I remember right you live near the river north of Bismarck.

Hope all is well with you.

Jody

-----Original Message-----

From: [Michael Olson@fws.gov](mailto:Michael.Olson@fws.gov) [mailto:Michael.Olson@fws.gov]  
Sent: Friday, June 10, 2011 3:13 PM  
To: Farhat, Jody S NWD02  
Subject: Hang in there -

Jody: I've been thinking about you a lot these last few weeks. I know you and your staff must be under tremendous stress, but I wanted you to know that we're sending good thoughts and prayers in your direction and we know that all of us will get through this flooding in one piece.

All the best -

Mike

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] F NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 5:42 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; A [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] NWD02; S [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; H [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 10 Jun 2011.docx

Classification: UNCLASSIFIED

Caveats: NONE

FYSA

Classification: UNCLASSIFIED

Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**10 June 2011**

We posted the updated reservoir forecast to the web this afternoon. There was only one minor adjustment to the schedule. Releases from Fort Randall are reaching Gavins Point faster than anticipated due to the high flows and as a result the pool at Gavins Point has risen about a foot and a half over the past 5 days. As a result, we held releases today at the same rate as yesterday, 137,000 cfs, to stem the rise at Gavins Point. It's working as planned and the pool has leveled off. This release adjustment is just part of our normal intrasystem regulation and has no effect of releases from any of the other dams including Gavins Point. We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases reached the peak 60,000 cfs today and will be held at that rate.
- Garrison –135,000 cfs today, holding that release on Sat and Sun, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, holding that rate tomorrow, and gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 145,000 cfs today, holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

We continue to hear rumors about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
  - We had no basis on which to justify record releases prior to the repeated rounds of heavy rain in May. Regulation of the reservoir system is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.
  - Peak Releases for the basic and upper basic runoff condition in our April 1 forecast were as follows:
    - Fort Peck: 11,000 cfs basic, 18,000 cfs upper basin
    - Garrison: 30,500 cfs basic, 41,500 cfs upper basic
    - Oahe: 41,800 cfs basic, 55,300 cfs upper basin
    - Big Bend: 41,400 cfs basic, 55,000 cfs upper basin
    - Fort Randall: 43,800 cfs basic, 57,700 cfs upper basic
    - Gavins Point: 45,000 cfs basic, 59,500 cfs upper basic
  - Peak Releases for the basic and upper runoff condition in our May 1 forecast were as follows:
    - Fort Peck: 20,000 cfs basic, 26,000 cfs upper basin
    - Garrison: 49,000 cfs basic, 61,500 cfs upper basic
    - Oahe: 54,100 cfs basic, 62,400 cfs upper basin
    - Big Bend: 54,000 cfs basic, 63,500 cfs upper basin
    - Fort Randall: 56,100 cfs basic, 66,200 cfs upper basic
    - Gavins Point: 57,500 cfs basic, 68,000 cfs upper basic
  - Mountain snowpack was tracking slightly above normal through early April, and then rose dramatically between mid-April and early May.
    - Jan 1 Snowpack = 112% FTPK, 120% GARR
    - Feb 1 Snowpack = 112% FTPK, 111% GARR
    - Mar 1 Snowpack = 109% FTPK, 106% GARR
    - Apr 1 Snowpack = 116% FTPK, 112% GARR
    - May 1 Snowpack = 141% FTPK, 136% GARR
    - Peak Snowpack = 141% FTPK on May 2, 136% GARR on May 2
  - At no time prior to mid May did we anticipate needing record releases from the mainstem reservoir system.
- Will this change the way the reservoir system is operated in future years?
  - The reservoir system has been operated in accordance with the Master Manual. The Master Manual Review and Update study, which was conducted between 1989 and 2004, analyzed the potential to provide additional flood control storage

by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

- 2011 is a new data point in the history of the Missouri River basin, both in terms of hydrology and flood plain impacts, and this event will certainly be studied in the future. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.
- Did you store water to help out the flooding on the Mississippi River?
  - We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for the benefit of the Mississippi River.
- Were releases held back earlier in the season to protect nesting least terns and piping plovers?
  - No operational decisions this year were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.

#### Climatic Conditions

- This flood event was due to repeated rounds of heavy rain, coupled with near record plains snowpack which filled up virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff. Mountain snowpack accumulation is much above normal and continued to accumulate well into May, reaching record levels in some areas. In addition, the melt has been delayed, increasing the likelihood of a rapid melt.
- Snowpack is well above historic levels and has only just begun to melt in others
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak
  - Garrison - crested at 141% of peak; currently 113% of the normal peak
- May 2011 runoff in the Missouri River basin above Sioux City was 10.5 MAF; the previous record May inflow was 7.2 MAF (1995)
  - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
  - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

#### Reservoir Releases

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- How long will the high flows continue?
  - High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
  - We don't have an exact schedule at this time. It will certainly depend on how the project facilities and the system of risk reduction measures performs with the high flows as well as runoff conditions in the coming months.
  - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997
  
- Master Manual: We have received numerous questions from the media and the public about how we manage water releases from our reservoirs. I would just like to reemphasize that all of these decisions are based on the Master Manual, which is a water control plan that helps guide how much water should be released, when, and for how long from our reservoirs for the benefit of the entire Missouri River basin. The Master Manual is based on over 100 years of historical runoff records (1898-2004).

We revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were constructed.

- Duration: We are also getting many questions regarding the duration of the high flows. These peak releases will likely extend well into August. Our reservoir forecast posted on the web shows Fort Peck still in the surcharge pool, and Garrison and Oahe still in their exclusive flood control pools on 15 July. We need to maintain these high releases until the reservoirs are back down to a manageable level.

The other guiding principle here is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies to our mainstem dams as well as impacted communities, infrastructure and flood risk mitigation projects downstream of the dams. Over the next several days we will be looking at several scenarios for evacuating the flood water stored in the mainstem reservoir system and will provide better estimates when they become available.



**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 6:55 PM  
**To:** [REDACTED] NWD  
**Subject:** RE: my two cents (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Great advice, I'll start answering in that manner.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Friday, June 10, 2011 6:30 PM  
**To:** Farhat, Jody S NWD02; Ruch, Robert J COL NWO  
**Cc:** Farmer, Monique L NWO; Blechinger, Erik T NWO  
**Subject:** my two cents (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody/Sir:

You both were asked during this morning's call and then again tonight about whether or not the Corps would review how we operated the system.

I would suggest rather than starting the response with the fact that we'll conduct an after action report (which some people might read as our admitting there was an error) that we lead with the talking points that we operated the system IAW the master manual this spring and were well positioned to accept the runoff -- mother nature threw us a curve ball in May with record rains.

We can then certainly use the sound bite that we'll do an internal review and whether or not any studies leads to changes in the operation of the system remains to be seen.

I also like how you add, COL Ruch, about the Master Manual being the result of 14-years of public input balancing the 8 authorized purposes, which means it's not optimized solely for flood control.

v/r, [REDACTED]

[REDACTED]  
[REDACTED] U.S. Army Corps of Engineers Office of Counsel, Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

From: Farhat, Jody S NWD02  
Sent: Friday, June 10, 2011 7:08 PM  
To: [REDACTED] NWD  
Cc: [REDACTED] NWD; McMahon, John R BG NWD; Anderson, G Witt NWD; Tipton, Robert A Col NWD; Ruch, Robert J COL NWO  
Subject: RE: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Will do.

-----Original Message-----

From: [REDACTED] NWD  
Sent: Friday, June 10, 2011 7:03 PM  
To: Farhat, Jody S NWD02  
Cc: [REDACTED] NWD; McMahon, John R BG NWD; Anderson, G Witt NWD; Tipton, Robert A Col NWD; Ruch, Robert J COL NWO  
Subject: RE: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

In case Witt did not get this to you yet. Please prepare a response by next Tuesday and discuss with [REDACTED] on the document request. Since it is a state representative, Witt could sign it or send it up here.

[REDACTED]

[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: (503) [REDACTED]  
BB: (503) [REDACTED]

-----Original Message-----

From: Tipton, Robert A Col NWD  
Sent: Friday, June 10, 2011 4:19 PM  
To: [REDACTED] NWD; Anderson, G Witt NWD  
Cc: [REDACTED] NWD; McMahon, John R BG NWD  
Subject: Re: North Dakota Legislative Assembly (UNCLASSIFIED)

Roger - I recommend we have Jody and [REDACTED] work this. Not sure if we need BG McMahon's signature or not - I can probably sign as acting if we think we need the Division signature vs. District.

I think we need to get a response out by Tuesday at the latest - preferably Monday. I don't think we have any documents that discuss holding back releases as we did not hold back releases at Gavin's Point.

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD  
To: Anderson, G Witt NWD  
Cc: [REDACTED] Pamela D NWD; Tipton, Robert A Col NWD  
Sent: Fri Jun 10 15:29:06 2011  
Subject: FW: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Witt,

Are you going to handle this from your location or do you want me to coordinate it? COL Ruch was looking for a suspense from Division to move it from his plate to ours. I believe M1 will want to sign the response but not sure of his return.

Thoughts?

[REDACTED]

[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: (503) 800-5820  
BB: (503) [REDACTED]

-----Original Message-----

From: Ruch, Robert J COL NWO  
Sent: Friday, June 10, 2011 3:03 PM  
To: [REDACTED] NWD  
Subject: FW: North Dakota Legislative Assembly (UNCLASSIFIED)

As promised!

-----Original Message-----

From: Ruch, Robert J COL NWO  
Sent: Friday, June 10, 2011 11:56 AM  
To: McMahon, John R BG NWD  
Cc: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Anderson, G Witt NWD; [REDACTED] HQ02; Thomas, Kimberly S NWO; [REDACTED] NWO; [REDACTED] NWD  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Sir,

Attached is a request for information from the ND Legislative Assembly addressed to me. Frankly, I think most of the questions are really RCC answers and are quite easily answered. Bullets 1,2,3,5 could be answered in very short order. I leave bullet 4 to the attorneys to advise on but I believe an official FOIA request is required. Either way we should begin to gather that information.

As these questions are really RCC related do you want the District to reply or the Division?  
I think a prompt reply by early next week is advisable.

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

From: Clark, Mark D HQ02  
Sent: Friday, June 10, 2011 10:48 AM  
To: Ruch, Robert J COL NWO; [REDACTED] NWO; [REDACTED] M NWO  
Cc: [REDACTED] NWO; [REDACTED] NWO  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

During the City update today Congressman Rick Berg presented me with the attached RFI regarding current Missouri River flooding. He wanted me to follow up on how long it would take to get a response to the RFI, I responded that I would contact you and provide a suspense. Also the Mayor of Bismarck turned over the facilitator responsibilities of the daily meeting to the Bismarck EOC Director. Therefore future USACE presence at the daily meeting is not required. However I did explain to the Director that we would be available if any questions or issues came about. Subject to your approval I will discontinue presenting at the City meeting and provide the City with daily input.

V/r

[REDACTED]  
Disaster Program Manager  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[\[REDACTED\]@usace.army.mil](mailto:[REDACTED]@usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 7:09 PM  
**To:** [REDACTED] SAW  
**Subject:** RE: WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

The talking points are for your use, but we don't share copies with others outside the Corps.

Jody

-----Original Message-----

**From:** [REDACTED] SAW  
**Sent:** Friday, June 10, 2011 6:06 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)

Before I release anything I always ask first. Can I give this to the State EOC and FEMA?  
Let me know. Thanks

[REDACTED]

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED], [REDACTED] NWD; G [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; B [REDACTED] NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] SAW  
**Cc:** [REDACTED] NWD02; S [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] D NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Sent:** Fri Jun 10 17:41:35 2011  
**Subject:** WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 7:03 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] McMahon, John R BG NWD; Anderson, G Witt NWD; Tipton, Robert A Col NWD; Ruch, Robert J COL NWO  
**Subject:** RE: North Dakota Legislative Assembly (UNCLASSIFIED)  
**Attachments:** RFI.PDF

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

In case Witt did not get this to you yet. Please prepare a response by next Tuesday and discuss with [REDACTED] on the document request. Since it is a state representative, Witt could sign it or send it up here.

[REDACTED]

[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: [REDACTED]  
BB: (505) [REDACTED]

-----Original Message-----

**From:** Tipton, Robert A Col NWD  
**Sent:** Friday, June 10, 2011 4:19 PM  
**To:** [REDACTED] Anderson, G Witt NWD  
**Cc:** [REDACTED] McMahon, John R BG NWD  
**Subject:** Re: North Dakota Legislative Assembly (UNCLASSIFIED)

[REDACTED] - I recommend we have Jody and [REDACTED] work this. Not sure if we need BG McMahon's signature or not - I can probably sign as acting if we think we need the Division signature vs. District.

I think we need to get a response out by Tuesday at the latest - preferably Monday. I don't think we have any documents that discuss holding back releases as we did not hold back releases at Gavin's Point.

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED]  
**To:** Anderson, G Witt NWD  
**Cc:** [REDACTED], Tipton, Robert A Col NWD  
**Sent:** Fri Jun 10 15:29:06 2011  
**Subject:** FW: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Witt,

Are you going to handle this from your location or do you want me to coordinate it? COL Ruch was looking for a suspense from Division to move it from his plate to ours. I believe M1 will want to sign the response but not sure of his return.

Thoughts?

[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: [REDACTED]  
BB: [REDACTED]

-----Original Message-----

From: Ruch, Robert J COL NWO  
Sent: Friday, June 10, 2011 3:03 PM  
To: [REDACTED]  
Subject: FW: North Dakota Legislative Assembly (UNCLASSIFIED)

As promised!

-----Original Message-----

From: Ruch, Robert J COL NWO  
Sent: Friday, June 10, 2011 11:56 AM  
To: McMahon, John R BG NWD  
Cc: [REDACTED] Blechinger, Erik  
T NWO; Farhat, Jody S NWD02; Anderson, G Witt NWD; [REDACTED] Thomas, Kimberly S  
NWO; [REDACTED]  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Sir,

Attached is a request for information from the ND Legislative Assembly addressed to me. Frankly, I think most of the questions are really RCC answers and are quite easily answered. Bullets 1,2,3,5 could be answered in very short order. I leave bullet 4 to the attorneys to advise on but I believe an official FOIA request is required. Either way we should begin to gather that information.

As these questions are really RCC related do you want the District to reply or the Division? I think a prompt reply by early next week is advisable.

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

From: [REDACTED]  
Sent: Friday, June 10, 2011 10:48 AM  
To: Ruch, Robert J COL NWO; Thomas, Kimberly S NWO; [REDACTED]  
Cc: [REDACTED]  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

During the City update today Congressman Rick Berg presented me with the attached RFI regarding current Missouri River flooding. He wanted me to follow up on how long it would take to get a response to the RFI, I responded that I would contact you and provide a suspense. Also the Mayor of Bismarck turned over the facilitator responsibilities of the daily meeting to the Bismarck EOC Director. Therefore future USACE presence at the daily meeting is not required. However I did explain to the Director that we would be available if any questions or issues came about. Subject to your approval I will discontinue presenting at the City meeting and provide the City with daily input.

V/r

[REDACTED]  
[REDACTED]  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE





REPRESENTATIVE  
TODD PORTER  
District 34  
4604 Borden Harbor Drive SE  
Mandan, ND 58554-7961  
tkporter@nd.gov

HOUSE OF REPRESENTATIVES  
**NORTH DAKOTA  
LEGISLATIVE ASSEMBLY**

STATE CAPITOL  
600 EAST BOULEVARD  
BISMARCK, ND 58505-0360



COMMITTEES:  
Human Services  
Natural Resources, Chairman

June 9, 2011

Colonel Robert Ruch  
Commander  
Omaha District, Northwestern Division  
United States Army Corps of Engineers  
1616 Capitol Avenue, Suite 365  
Omaha, NE 68102-4901

Dear Colonel Ruch:

This letter is a request for information relating to the current Missouri River flooding in Mandan/Bismarck, North Dakota. Specifically, I would like the following information:

- Why did the United States Army Corps of Engineers stop releasing water at an increased rate around the middle of March 2011 and not increase releases from the Garrison Dam until May 6<sup>th</sup> 2011, especially given the fact that the reservoir was full and the snow pack was at least 140% of normal?
- What role, if any, did the snowpack in the upper portion of the Missouri River Basin play in the management of the water releases from the Garrison Dam?
- Given the fact that the reservoir system was full in 2010, why weren't the releases timed to prevent the catastrophic event that we are currently experiencing?
- Please provide any records regarding the decision to delay Garrison Dam releases and any internal memos/emails discussing the decisions to delay the releases and slow the releases in 2011.
- What part did the nesting season of the piping plover play in any water management decisions?

Thank you for your responses to this inquiry.

Sincerely,

Todd Porter  
State Representative

Cc: Senator John Hoeven  
Senator Kent Conrad  
Congressman Rick Berg

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 6:34 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Weekend Staffing

Jody,

I didn't really get to finish talking to you about the weekend staffing. Joel was scheduled to work so he preferred to just work all day both days (in the hopes of having a future weekend free). So he'll cover power team and run the forecast. I'm tied up a little bit Saturday but otherwise I'm available. I know you have been working extremely hard so let me know if I can help you out with anything, especially on Sunday.

[REDACTED]

-----  
Message sent via my BlackBerry Wireless Device

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 6:30 PM  
**To:** Farhat, Jody S NWD02; Ruch, Robert J COL NWO  
**Cc:** Farmer, Monique L NWO; Blechinger, Erik T NWO  
**Subject:** my two cents (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody/Sir:

You both were asked during this morning's call and then again tonight about whether or not the Corps would review how we operated the system.

I would suggest rather than starting the response with the fact that we'll conduct an after action report (which some people might read as our admitting there was an error) that we lead with the talking points that we operated the system IAW the master manual this spring and were well positioned to accept the runoff -- mother nature threw us a curve ball in May with record rains.

We can then certainly use the sound bite that we'll do an internal review and whether or not any studies leads to changes in the operation of the system remains to be seen.

I also like how you add, COL Ruch, about the Master Manual being the result of 14-years of public input balancing the 8 authorized purposes, which means it's not optimized solely for flood control.

v/r, [REDACTED]

[REDACTED]  
Attorney/Advisor, U.S. Army Corps of Engineers Office of Counsel, Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Before I release anything I always ask first. Can I give this to the State EOC and FEMA?  
Let me know. Thanks

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 5:47 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

For what it is worth, I think your team and especially you have done an amazing job in managing the Missouri River System and communicating the complex decision making to the critical stakeholders. You are the best in my book.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: [REDACTED]  
BB: [REDACTED]

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Friday, June 10, 2011 3:42 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED]  
[REDACTED]  
Cc: [REDACTED]  
[REDACTED]  
Subject: WM Talking Points for 10 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**10 June 2011**

We posted the updated reservoir forecast to the web this afternoon. There was only one minor adjustment to the schedule. Releases from Fort Randall are reaching Gavins Point faster than anticipated due to the high flows and as a result the pool at Gavins Point has risen about a foot and a half over the past 5 days. As a result, we held releases today at the same rate as yesterday, 137,000 cfs, to stem the rise at Gavins Point. It's working as planned and the pool has leveled off. This release adjustment is just part of our normal intrasystem regulation and has no effect of releases from any of the other dams including Gavins Point. We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases reached the peak 60,000 cfs today and will be held at that rate.
- Garrison –135,000 cfs today, holding that release on Sat and Sun, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, holding that rate tomorrow, and gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 145,000 cfs today, holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

We continue to hear rumors about the peak releases from the mainstem reservoirs. I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

## Water Management General Talking Points – Updated 5 June 2011

### Operation in accordance with Master Manual

- The Missouri River Mainstem Reservoir System has been operated in accordance with the Master Manual.
- The full flood control capacity of the mainstem reservoir system was available at the start of this year's runoff season.
  - System storage on 28 January 2011 was at the desired level of 56.8 MAF
  - All of the flood water from 2010 had been evacuated prior to the start of the 2011 runoff season
- Should releases have been increased sooner?
  - This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt.
  - We had no basis on which to justify record releases prior to the repeated rounds of heavy rain in May. Regulation of the reservoir system is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.
  - Peak Releases for the basic and upper basic runoff condition in our April 1 forecast were as follows:
    - Fort Peck: 11,000 cfs basic, 18,000 cfs upper basin
    - Garrison: 30,500 cfs basic, 41,500 cfs upper basic
    - Oahe: 41,800 cfs basic, 55,300 cfs upper basin
    - Big Bend: 41,400 cfs basic, 55,000 cfs upper basin
    - Fort Randall: 43,800 cfs basic, 57,700 cfs upper basic
    - Gavins Point: 45,000 cfs basic, 59,500 cfs upper basic
  - Peak Releases for the basic and upper runoff condition in our May 1 forecast were as follows:
    - Fort Peck: 20,000 cfs basic, 26,000 cfs upper basin
    - Garrison: 49,000 cfs basic, 61,500 cfs upper basic
    - Oahe: 54,100 cfs basic, 62,400 cfs upper basin
    - Big Bend: 54,000 cfs basic, 63,500 cfs upper basin
    - Fort Randall: 56,100 cfs basic, 66,200 cfs upper basic
    - Gavins Point: 57,500 cfs basic, 68,000 cfs upper basic
  - Mountain snowpack was tracking slightly above normal through early April, and then rose dramatically between mid-April and early May.
    - Jan 1 Snowpack = 112% FTPK, 120% GARR
    - Feb 1 Snowpack = 112% FTPK, 111% GARR
    - Mar 1 Snowpack = 109% FTPK, 106% GARR
    - Apr 1 Snowpack = 116% FTPK, 112% GARR
    - May 1 Snowpack = 141% FTPK, 136% GARR
    - Peak Snowpack = 141% FTPK on May 2, 136% GARR on May 2
  - At no time prior to mid May did we anticipate needing record releases from the mainstem reservoir system.
- Will this change the way the reservoir system is operated in future years?
  - The reservoir system has been operated in accordance with the Master Manual. The Master Manual Review and Update study, which was conducted between 1989 and 2004, analyzed the potential to provide additional flood control storage



by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

- 2011 is a new data point in the history of the Missouri River basin, both in terms of hydrology and flood plain impacts, and this event will certainly be studied in the future. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.
- Did you store water to help out the flooding on the Mississippi River?
  - We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for the benefit of the Mississippi River.
- Were releases held back earlier in the season to protect nesting least terns and piping plovers?
  - No operational decisions this year were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.

#### Climatic Conditions

- This flood event was due to repeated rounds of heavy rain, coupled with near record plains snowpack which filled up virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff. Mountain snowpack accumulation is much above normal and continued to accumulate well into May, reaching record levels in some areas. In addition, the melt has been delayed, increasing the likelihood of a rapid melt.
- Snowpack is well above historic levels and has only just begun to melt in others
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak
  - Garrison - crested at 141% of peak; currently 113% of the normal peak
- May 2011 runoff in the Missouri River basin above Sioux City was 10.5 MAF; the previous record May inflow was 7.2 MAF (1995)
  - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
  - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

#### Reservoir Releases

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- How long will the high flows continue?
  - High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
  - We don't have an exact schedule at this time. It will certainly depend on how the project facilities and the system of risk reduction measures performs with the high flows as well as runoff conditions in the coming months.
  - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997
- Master Manual: We have received numerous questions from the media and the public about how we manage water releases from our reservoirs. I would just like to reemphasize that all of these decisions are based on the Master Manual, which is a water control plan that helps guide how much water should be released, when, and for how long from our reservoirs for the benefit of the entire Missouri River basin. The Master Manual is based on over 100 years of historical runoff records (1898-2004).

We revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were constructed.

- Duration: We are also getting many questions regarding the duration of the high flows. These peak releases will likely extend well into August. Our reservoir forecast posted on the web shows Fort Peck still in the surcharge pool, and Garrison and Oahe still in their exclusive flood control pools on 15 July. We need to maintain these high releases until the reservoirs are back down to a manageable level.

The other guiding principle here is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies to our mainstem dams as well as impacted communities, infrastructure and flood risk mitigation projects downstream of the dams. Over the next several days we will be looking at several scenarios for evacuating the flood water stored in the mainstem reservoir system and will provide better estimates when they become available.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 5:41 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** 'bunk.matt@gmail.com'  
**Subject:** RE: List of Participants on ND coordination calls (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

Here's the list of original folks invited to participate in the calls. The invite for the calls went out on May 13th and the first call was held on May 16th.

- Burleigh County EM (Mary Senger)
- Morton County EM (Tammy Lapp-Harris)
- Oliver County EM (Sandy Olin)
- McLean County EM (Richard Johnson)
- Sioux County EM (Frank Landels)
- City of Bismarck EM (Gary Stockert)
- National Weather Service (Allen Schlag)
- ND DES (Amy Anton, Kathleen Donahue, Cecily Fong)
- ND SWC (Bruce Engelhardt, Kelly Casteel)

After the first few initial calls, several additional folks began to participate. Additional participants included Williams County, personnel from Representative Berg's Office, and Senator Conrad's office. I don't recall if Senator Hoeven's staff participated in some of the calls as well? We also had various folks from the National Weather Service participate including their River Forecast Center. Let me know if you need anything else?

[REDACTED]  
[REDACTED]  
Garrison Project

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 5:07 PM  
**To:** [REDACTED]  
**Cc:** [bunk.matt@gmail.com](mailto:bunk.matt@gmail.com)  
**Subject:** List of Participants on ND coordination calls (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Matt Bunk, cc'd here, is a reporter with the Great Plains Examiner. He just interviewed me for a story he is working on and would like a list of the participants in the ND coordination call we've been having. Can you send that to him?

Thanks,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 5:24 PM  
**To:** [REDACTED]  
**Cc:** Oldham, Margaret NWO; Quinn, Kevin R NWO; Farmer, Monique L NWO; Blechinger, Erik T NWO; [REDACTED] Wingert, Kevin M NWO; Farhat, Jody S NWD02  
**Subject:** RE: Jody Farhat (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I spent about 40 minutes on the phone with Mr. Bunk this afternoon and stepped him through the complete flood timeline. He asked many questions, all of which we've been asked many times before and he seemed satisfied with the answers. I explained that we had been coordinating releases with ND officials since mid-May through daily press releases and daily coordination calls. He asked for a list of invitees to the calls and I told him I would have [REDACTED] send him the list. I've coordinated that with [REDACTED] and he'll be sending it.

No particular issues arose on the call. I told him to call anytime if he had additional questions. I'm hoping he has enough information now that he'll withdraw the FOIA request, but if not we'll manage.

Let me know if you have any questions.

Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 8:55 AM  
**To:** [REDACTED]; Wingert, Kevin M NWO  
**Cc:** Oldham, Margaret NWO; Quinn, Kevin R NWO; Farmer, Monique L NWO; Blechinger, Erik T NWO  
**Subject:** RE: Jody Farhat (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

He's asking for an interview. Is there any problem with talking to him at this point?

Jody

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 8:53 AM  
**To:** Wingert, Kevin M NWO  
**Cc:** White, Linda J NWO; Oldham, Margaret NWO; Quinn, Kevin R NWO; Farhat, Jody S NWD02; Farmer, Monique L NWO; Blechinger, Erik T NWO  
**Subject:** RE: Jody Farhat (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Kevin - Once you sent the FOIA request to Office of Counsel, we take care of the response. I have already been in contact with Mr. Bunk.

[REDACTED]

[REDACTED]  
Phone: [REDACTED]

email: [REDACTED]

ATTORNEY-CLIENT PRIVILEGED  
DO NOT RELEASE UNDER FOIA  
DO NOT COPY OR FORWARD

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 09, 2011 8:38 AM

To: Wingert, Kevin M NWO; Blechinger, Erik T NWO; Farmer, Monique L NWO; [REDACTED]

Cc: [REDACTED] Oldham, Margaret NWO; Quinn, Kevin R NWO

Subject: RE: Jody Farhat (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

I think this was meant to go to [REDACTED] in OC.

-----Original Message-----

From: Wingert, Kevin M NWO

Sent: Thursday, June 09, 2011 7:34 AM

To: Blechinger, Erik T NWO; Farmer, Monique L NWO

Cc: [REDACTED] Oldham, Margaret NWO; Quinn, Kevin R NWO; Farhat, Jody S NWD02

Subject: FW: Jody Farhat (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Erik/[REDACTED]

FYSA. Mr. Bunk is the individual who filed a FOIA request for Jody's emails related to the flood event.

Please advise if my response should be anything other than to process and submit the media request to Monique and send a receipt back to Mr. Bunk informing that his request has been submitted. Thank you.

Very Respectfully,

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

-----Original Message-----

From: matt bunk [mailto:[bunk.matt@gmail.com](mailto:bunk.matt@gmail.com)]

Sent: Thursday, June 09, 2011 1:50 AM

To: Wingert, Kevin M NWO

Subject: Jody Farhat

Hi, Kevin. I think I need a couple minutes with Jody Farhat, if you can arrange it for me. I really think it's important for someone to explain why so little water was released through

Garrison during the 45-day period from March 20 through May 5. I am starting to suspect flows were restricted from upper basin dams to prevent more severe flooding in the lower basin, but her answers on the conference calls have been so non-committal that I think they're causing more confusion than anything else. I want my stories to be accurate, and I'm not sure that's possible given the nature of the answers I've been receiving. Let me know if you can arrange a quick interview.

-Matt Bunk

Great Plains Examiner

602-513-2951

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

**From:**  
**Sent:**  
**To:**  
**Cc:**

[REDACTED]  
Friday, June 10, 2011 5:20 PM

[REDACTED]  
Blechinger, Erik T NWO; [REDACTED]

[REDACTED]  
McWilliams, Charles D NWO; [REDACTED]

[REDACTED]  
Farhat, Jody S NWD02; [REDACTED]

**Subject:**

MRRP PgM Update -- week ending 10 June (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
  
General Information from the team this past week --

1 - TCF accepted our offer of \$7.2M for the Bootlegger property - yahoo to the entire team working this one! Once this is all finalized we will task the RE Tiger Team with developing our NGO - RE process and add another tool in our MRRP tool box.

2 - Due to high flows in the Yellowstone River it has been decided to forgo any further broodstock collection efforts for this year. Miles City has one female from RPMA 1 and one male from the Yellowstone River.

3 - [REDACTED] shared that "many of us are in the heat of Flood Fight activities, and while there has been some great progress made in defining the MRRP O&M transition point, and I don't want to lose that momentum ..." the team has pushed out a schedule call for a couple of weeks. In the meantime, [REDACTED] will share a Draft Proposed Terrestrial Feature Transition Plan and the River System Transition Plan for the team's consideration.

4 - Had an opportunity to fly the Big Muddy this past week via a Blackhawk. Our trip included the ASA and Gov Brownback (KS). We talked about the MRRP, our mitigation efforts, the value of such land to floodplain connectivity, and the importance of our state partners. In the end the Gov was fully supportive of the land acquisition strategy and wanted to know when he could go hunting down at Benedictine!

5 - I talked with [REDACTED] this morning and [REDACTED] this afternoon about developing a NEPA white paper for MRRP. The purpose is to capture where we have coverage and where there may be 'gaps'. This would be useful for us immediately internally and can be incorporated into ERP efforts.

6 - With "Operation Mighty Mo" in full force, I have asked the team to track possible staffing impacts as we move forward. I thought it would be good to track this in event questions are asked by others down the road.

FYI ...

1) The second round of topic-specific calls for the MRERP Social, Cultural and Economic Technical Teams will continue this coming week. Topics include: developed lands and agriculture, cultural and historic sites, navigation, and hydropower.



2) [REDACTED] participated in the 2011 Kansas State Legislator's Tour on Thursday and provided an overview of MRRP and our KS mitigation projects and partnership with KDWP.

3) [REDACTED] shared the following: A story written by the NGPC on pallid recovery efforts which includes a few pictures of Colonel Ruch. This is in the FWS quarterly ESA bulletin (look on page 44) <http://www.fws.gov/endangered/bulletin/2011/spring2011.pdf>

4) [REDACTED] shared this observation while on "log patrol" in Lewis and Clark Lake ... As we pick up woody debris (to keep it from jamming the spillway gates) scuds, crawdads and mayfly larvae cover the bottom of the boats.

5) Several of us met with the Holt County, MO contingent this past Wednesday to discuss levees and MRRP. The levee district was blaming our chute for seepage issues on L-497, but we had not even built a chute on the site yet! The county is also proposing a levee setback with the opportunity for us to purchase additional lands riverward of the levee; catch is that they would like to see additional lands set aside permanently for agr leasing. They are thinking outside of the box and looking for win-win options for the county's economic viability and for us as well -- I appreciate that willingness and effort.

Upcoming week ...

- 1) PRB week in NWO;
- 2) CORE pre-meeting to discuss our internal strategy for the Intake - MRRP discussion;
- 3) Tue -- Model certification webinar;
- 4) Friday we are meeting to discuss the Intake - MRRP tradeoffs in preparation for the CORE meeting the following week.

Schedule:

Mon - Tue -- Omaha  
Wed - Thur -- Ames, IA (leave)  
Fri -- Omaha

Have a dry weekend! As always, if you have any questions, please feel free to give me a shout!

[REDACTED]  
[REDACTED]  
Missouri River Recovery Program  
US Army Corps of Engineers

O: [REDACTED] (Kansas City)

O: [REDACTED] (Omaha)

C: [REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

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**From:** Ruch, Robert J COL NWO  
**Sent:** Friday, June 10, 2011 5:00 PM  
**To:** Thomas, Kimberly S NWO; Farhat, Jody S NWD02  
**Cc:** Blechinger, [REDACTED] H NWO; McMahon, John R BG NWD; Anderson, G Witt NWD; [REDACTED]  
**Subject:** RE: Prep for REP Noem (UNCLASSIFIED)

Kim/Jody,

I think we have 90% of this one done already based on the preparations we did for SEN Thune. I am thinking we need to update the sheet of work and resources for SD and flesh out the timeline Jody started.

Kim - I want a slide presentation pulled together like we gave to Rep Terry that we will forward to [REDACTED] on Sunday.

[REDACTED] - Call staff and make sure we know what she intends to focus on with MG Grisoli.

I am sure Witt will have a bit to add but this should get us pretty close.

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Appointment-----

**From:** [REDACTED] On Behalf Of Grisoli, William T MG HQ02  
**Sent:** Friday, June 10, 2011 4:49 PM  
**To:** McMahon, John R BG NWD; Anderson, G Witt NWD; [REDACTED]  
Ruch, Robert J COL NWO; Farhat, Jody S NWD02; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** FW: Prep for REP Noem (UNCLASSIFIED)  
**When:** Monday, June 13, 2011 8:30 AM-9:00 AM (GMT-06:00) Central Time (US & Canada).  
**Where:** ODCG-CEO

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin 2 Jun 11 - - prep for office call with REP Noem regarding SD flood fight.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

<< File: DCG-CEO READ AHEAD (prep for office call with REP Noem regarding SD flood fight 13 June 2011.docx >> << File: bio - REP Kristi Noem.docx >> << File: 2011 Missouri River Flood Talking Points 10 Jun 2011 (2).docx >>

[REDACTED]

---

**From:** Erdman, Phil (Johanns) [Phil\_Erdman@Johanns.senate.gov]  
**Sent:** Friday, June 10, 2011 4:58 PM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: Timeline

[REDACTED]

Thanks for sharing information with us as the process unfolds.

Phil

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 12:20 PM  
**To:** Erdman, Phil (Johanns)  
**Cc:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: Timeline

Phil -

Archived daily precipitation information is available on the NWS website at  
<http://water.weather.gov/precip/>

Another good source of information are the many press releases Water Management and the Omaha District have issued since the first of May. They're available on the website and will provide information at key points in time when operation of the system was changing due to weather conditions.  
<http://www.nwo.usace.army.mil>

We can pull the archived releases if you want, but if it's the full analysis, it typically occurs during the post flood report. The short of it is that even if we had known this historic runoff was coming, record releases from all 6 mainstem dams would have been necessary to handle the runoff. Based on our forecasted 44 MAF of runoff from March through July, we would likely have needed releases in the range of 85,000 to 90,000 cfs from the lower 5 dams for the period of 1 March through this fall. Although significantly lower than the planned release, these would be far above previous records and they would have needed to begin on 1 March when the river was still ice covered. Had we waited until the ice went off the river and the plains snowpack melted, releases of over 100,000 cfs would certainly have been required.

In reality, we had no basis on which to increase flows to historic levels until the extraordinary rainfall event which resulted in a record runoff in May.

Again, this is just a quick synopsis. A more detailed review will be conducted following the flooding this year to assess the operation of the reservoir system, its effects, and to learn where improvements or adjustments might be warranted. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen. Keep in mind that the 14 year process which led to the Master Manual is what dictates how we operate the system.

Let me know if you have any questions or if this suffices for now.

Thanks,

[REDACTED]

-----Original Message-----

From: Erdman, Phil (Johanns) [mailto:[Phil\\_Erdman@Johanns.senate.gov](mailto:Phil_Erdman@Johanns.senate.gov)]

Sent: Tuesday, June 07, 2011 5:05 PM

To: [REDACTED]

Subject: Timeline

[REDACTED]

Do you have a timeline of decisions the Corps made and when they made them (points in time of what amounts would be released and then subsequent announcements)? Is it on the website?

I am trying to piece that together for my benefit.

Phil Erdman

[Phil\\_Erdman@Johanns.senate.gov](mailto:Phil_Erdman@Johanns.senate.gov)

-----  
Sent via wireless device.

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:56 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** IA USGS Measurement on the Missouri River at Blair, NE

Missouri River at Blair, NE

Date	Gage	Measured	Corps Discharge	Percent	Water	Air
Time	Height	Discharge	Discharge	Difference	Difference	Temp
(hhmm)	(feet)	(cfs)	(cfs)	(-)	(F)	(F)
6/10/2011	1430	30.25	137,400	-137,400	#DIV/0!	67.8
			0	#DIV/0!		66.2
			0	#DIV/0!		
			0	#DIV/0!		
			0	#DIV/0!		

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:53 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:42 PM  
**To:** [REDACTED] Hofmann, Anthony J COL NWK; [REDACTED]  
[REDACTED]  
[REDACTED]  
**Subject:** Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Congressman Graves held a meeting at Parkville at 2PM, meeting was pretty negative against the Corps. The following were the primary discussion points:

1. Congressman starting out the meeting: There has been flooding in 2007, 2008, 2010, and now and in each case the Corps has "missed their targets every time" and is missing the targets now.
2. Congressman characterized the Corps of Engineers as releasing too much water, not operating properly, and Congressman would ask why we can't lower the releases.
3. Citizens were asking why there can't be a levee at Parkville. Officials portrayed Missouri River Levee at L385 as taking since 1930's to construct. I advised Mayor Richardson (in private) after the meeting that we studied a levee / floodwall at Parkville after 1993 flood, and determined that it had VERY questionable technical feasibility, no economic feasibility, no financial (cost share) feasibility, and that it would devastate the aesthetics of downtown Parkville. City did not pursue a project for that reason. After the meeting in line with the general mood, Mayor took on a slightly questioning or even hostile tone toward me, so I of course departed the area.
4. A citizen claimed that they had the National Guard ready to go out and work on a levee, but the Corps was refusing to allow it. That issue got batted around the meeting quite a bit on how autonomous and hard to work with that the Corps was. Nobody ever said what levee or specified any factual circumstance.
5. Platte County asked for "tributary inundation maps". They told Congressman that Platte County asked the Corps for tributary inundation maps and that the Corps was not providing them. Then, Graves' LD Mr. Matusak called [REDACTED] asking for "inundation maps", did not specify "tributary", and then another staffer did same to Amy Blair, this just adding to misinformation. Truth is that we do not have the technical information or capability to provide broadly applied inundation maps on tribs. [REDACTED] explained that in a very well worded response email to Mr. Matusak.

6. Never once was mentioned the thousand of sandbags, sandbag machines, Port-a-dam from Rock Island, or the extensive technical support and proactive liaison provided by the Corps to Parkville.

In fairness, several County and City officials, Mayor Richardson, and multiple reporters in the room, all of who know me, nevertheless none of them called out my name or advised that I was there representing the Corps. For that I am eternally grateful to them!

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



**Subject:** FW: Prep for REP Noem (UNCLASSIFIED)  
**Location:** ODCG-CEO

**Start:** Mon 6/13/2011 8:30 AM  
**End:** Mon 6/13/2011 9:00 AM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Grisoli, William T MG HQ02

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin 2 Jun 11 - - prep for office call with REP Noem regarding SD flood fight.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



DCG-CEO READ  
AHEAD (prep for o..



bio - REP Kristi  
Noem.docx



2011 Missouri River  
Flood Talk...

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:47 PM  
**To:** Thomas, Kimberly S NWC [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
**Subject:** FW: Mike Ames (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Just a follow-up to my previous message to Kim and [REDACTED], which was a "heads up" regarding a technical request that we anticipate from the City of Williston. The message below, from [REDACTED], conveys similar concerns that he heard during his meeting with the City today. However, he notes that the City is being advised by Mike Ames. We have a long history, of unpleasant experiences, with Mr. Ames. He's still extremely angry at the Corps because we made him remove his leaky water line from along the Williston levee and he's been extremely vocal about USACE proposal to charge storage fees for water withdrawn from the reservoir. This individual has repeatedly tried to intimidate my staff, and I on issues in order to get his way. It seems that he is now "advising" the City on expected inflows and reservoir elevations.

I believe a request for the item noted in [REDACTED] message will be coming from the City of Williston, through Williams County, to the State EOC...  
[REDACTED]

-----Original Message-----

**From:** [REDACTED] [mailto:[REDACTED]]  
**Sent:** Friday, June 10, 2011 4:02 PM  
**To:** [REDACTED]  
**Subject:** Mike Ames

[REDACTED]

Meeting with the City fairly low key. Monte was even nice. He even prepared maps of the city. Their concern: what scenario do they plan for. Still confused on the lake level at Riverdale and the stage at Lewis and Clark Bridge. Railroad embankment 1857 +/- through the reach! Specific questions: 1. If the levee failed what is the Corps plan to protect the City? 2. Does levee need upgrades? 3. At what elevation does the City need to be concerned? 4. Can the City get a copy of the hydrology models for the flows of 200,000 cfs with a pool elevation of 1856. (Note: According to Mike Ames, that is what is coming.) He was not at the meeting but is willing to offer his opinions to the City for free. They are not interested in protecting sewage treatment pumping station. They will be calling the State on Monday to request technical assistance. They indicated that they have received calls from State, Senators, and Congressman's office asking what they need.

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]

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**From:** Blechinger, Erik T NWO  
**Sent:** Friday, June 10, 2011 4:46 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** RE: MR Exec Call (UNCLASSIFIED)

I have been on the entire time. Jody was doing an interview and is on now.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:44 PM  
**To:** Farhat, Jody S NWD02; Blechinger, Erik T NWO  
**Cc:** [REDACTED]  
**Subject:** MR Exec Call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Can you get on?

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:37 PM  
**To:** [REDACTED] DLL-NWK-EOC-BC; [REDACTED]  
[REDACTED] Farhat, Jody S NWD02; Thomas, Kimberly S NWO;  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] Blechinger, Erik T NWO; [REDACTED] Tipton, Robert  
A Col NWD; CENWO-EOC NWO; [REDACTED]  
**Cc:** CENWD-EOC NWD; Hains, Decker B LTC NWW; 'dan.nietfeld@noaa.gov';  
'cathy.zapotecny@noaa.gov'; 'scott.dergan@noaa.gov'; [REDACTED]  
**Subject:** RE: MRFLOOD: URGENT UPDATE -- L-471 (UNCLASSIFIED)  
**Importance:** High

Classification: UNCLASSIFIED  
Caveats: NONE

L-471 Contract Activities are NOT Complete!!!!  
The Scour Hole is completed; However, the under seepage berm is NOT complete.

At the Under seepage berm location, haul road construction is complete, sand is being hauled to this area, only 3% complete at this time.

We apologize for the confusion from the briefing this afternoon.

[REDACTED], P.E., PMP  
U.S. Army Corps of Engineers  
[REDACTED]  
601 E. 12th Street  
Kansas City, MO 64106  
P: [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 10:44 AM  
**To:** [REDACTED] DLL-NWK-EOC-BC; [REDACTED]  
[REDACTED] Farhat, Jody S NWD02; Thomas, Kimberly S NWO; [REDACTED]  
[REDACTED]  
[REDACTED] DLL-NWK-CMT; [REDACTED]  
[REDACTED] Blechinger, Erik T NWO;  
[REDACTED] Tipton, Robert A Col NWD; CENWO-EOC NWO; [REDACTED]  
**Cc:** CENWD-EOC NWD; Hains, Decker B LTC NWW; 'dan.nietfeld@noaa.gov';  
'cathy.zapotecny@noaa.gov'; 'scott.dergan@noaa.gov'; [REDACTED]  
**Subject:** RE: MRFLOOD/TORNADO - 10 Jun 1500hrs Daily CMT -- Brief of Joplin Tornado and Flood Fight (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

A CMT Briefing will be held at 1500 today for the Joplin Tornado Response and Flood Fight.

For clarification you will need to log in to the webmeeting to view the slides, and then call in to the conference call to hear the discussion:

WebMeeting Information:

<https://webmeeting.att.com>

Meeting Number: [REDACTED]

Code: [REDACTED]

You will be a Participant.

Call-In Number

1-888-[REDACTED]

Access code: [REDACTED]

Security Code: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:37 PM  
**To:** Farhat, Jody S NWD02 [REDACTED]  
**Subject:** Releases at Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I have fielded about 5 questions today from folks who said they heard we were planning a 160-170 release at Gavins. Need confirmation of forecast in case I am asked in a press conference in the morning.

[REDACTED]

[REDACTED]

Hydraulic Engineer  
CENWO-ED-HF  
Omaha District, USACE  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** Michael\_Olson@fws.gov  
**Sent:** Friday, June 10, 2011 4:34 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Hang in there - (UNCLASSIFIED)

We've evacuated. No worries - its just a house. If in the end its purpose was to donate itself to the cause of better local, state and federal river policy I can't think of a higher cause for a piece of property

Mike

----- Original Message -----

From: "Farhat, Jody S NWD02" [Jody.S.Farhat@usace.army.mil]  
Sent: 06/10/2011 03:44 PM EST  
To: Michael Olson  
Subject: RE: Hang in there - (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks Mike. It's an incredible event. We'll have a changed river when it's all over.

Is the flooding impacting your home? If I remember right you live near the river north of Bismarck.

Hope all is well with you.

Jody

-----Original Message-----

From: Michael Olson@fws.gov [mailto:Michael\_Olson@fws.gov]  
Sent: Friday, June 10, 2011 3:13 PM  
To: Farhat, Jody S NWD02  
Subject: Hang in there -

Jody: I've been thinking about you a lot these last few weeks. I know you and your staff must be under tremendous stress, but I wanted you to know that we're sending good thoughts and prayers in your direction and we know that all of us will get through this flooding in one piece.

All the best -

Mike

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 4:30 PM  
**To:** Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
**Cc:** [REDACTED] Bertino, John J Jr NWO; [REDACTED]  
**Subject:** Guidance on Managing the Missouri Rive (UNCLASSIFIED)  
**Attachments:** 0480\_001.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

All

This note was put the ND Reg Office last week. Sorry I didn't send it earlier, but I got busy and forgot about it.

I have the original if anybody wants it.

Enjoy

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



U.S. Army Corp. of Engineers

1513 S. 12<sup>th</sup>

(ATTN: Director; Ref. Flood Control -  
proposal)

\*MISSOURI

PROPOSED 'CONTROLLED-EROSION' of 'SAND-BAR-SHALLOWS' within THE MISERY RIVER & ROCK &/or CONCRETE FORTIFICATION of existing Shore Lines:

1. IS IT POSSIBLE TO USE 'RIVER CURRENT' as an improvised 'sand-sucking' induction pump?
2. DO WE HAVE THE MATERIALS & EXPERTISE TO deploy a barge w/Booms ((2)w/), THAT RAISES FROM above current surface TO below w/FUNNEL DIRECTING hydro-TURBO power TO IMPROVISED INDUCTION PUMP. POWERING 'SAND-SUCKING-FUNNEL' CONTROLLED BY THE SECOND BOOM)?
3. CAN WE DEPLOY A 'CONTROLLED-EROSION' DEEPENING OF THE MISSOURI RIVER ALONG ITS SHALLOWER AREA AND THUS ENHANCE WATER VOLUME CAPACITY WHILE REDUCING NATURAL EROSION UNDERMINING OUR EFFORTS?
4. CAN OUR 'ARMY-CORP-OF-ENGINEERS' AND OUR N.D. FISH & GAME DEPT., COLABORATE w/AN IDEA, TO AVOID COMPROMISING THE QUALITY OF OUR RIVER WHILE ENHANCING ITS QUANTITY?

WHILE I CONCEED THAT ONE MAJOR QUESTION - WOULD BE; IF YOU REMOVE THE SAND FROM THE SHALLOWS TO DEEPEN THE RIVER, WHERE THEN WOULD YOU PUT IT? RIVERSIDE LEVEES/DYKES?

FOR EVERY CUBIC FOOT OF RIVER WATER CAPACITY equals a proportional cubic foot of DRYLAND accessibility. SOME SAY; "AN ONCE OF PREVENTION a POUND OF CURE." YOURS TRULY; 'DAVY CROCKETT'  
great x 3 grand son T.D.F.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 3:53 PM  
**To:** Farhat, Jody S NWD02 [REDACTED]  
**Subject:** FW: summary of climate outlook through Sep. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Just what we DIDN'T want to hear...

[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

-----Original Message-----

**From:** [Dan.Nietfeld@noaa.gov](mailto:Dan.Nietfeld@noaa.gov) [<mailto:Dan.Nietfeld@noaa.gov>]  
**Sent:** Friday, June 10, 2011 2:13 PM  
**To:** [REDACTED]  
**Cc:** [Rebecca.Kern@noaa.gov](mailto:Rebecca.Kern@noaa.gov)  
**Subject:** summary of climate outlook through Sep.

[REDACTED],

There was a conference call today that discussed the CPC 90 day outlook for July-Aug-Sep. The Climate Program Leader at our office (Barb Mayes) sat in on the call and provided the following summary. This was a very significant call because now the CPC is leaning towards making a drastic change to their 90 day precipitation outlook (to be officially issued next Thu the 16th). They now favor wet conditions for the northern Rockies and northern Plains. Barb's summary is here:

Here is my take on what I heard during the CPC pre-outlook call on Friday 6/10. The outlook forecaster is Dave Unger, one of the most experienced, most precise, and maybe most scientific of their forecasters... a great person to be handling this update, given the situation! In last month's outlook package, the forecast for JAS actually called for a higher-than-usual chance for \*below \*normal precip in the northern Rockies (see image below). That forecast was based mainly on trends (and on statistical tools that rely on trend as a component). This month, several tools are indicating continued wetness in the northern Rockies, especially tools that incorporate soil moisture. Dave's favorite tool lately is the CFSv2 (2nd version of the Climate Forecast System, a dynamical model). The CFSv2 continues to indicate wetter conditions in the northern Rockies not only in JAS, but also into ASO and possibly even beyond that. This is supported by a couple other model-based tools. (The trend-based tools continue to indicate drier-than-normal conditions because, well, trends don't change in short periods of time!) The same tools also indicate the potential for a weaker than normal monsoon in the Southwest, and it is a typical "dipole" pattern to have wetness in one area and dryness in the other, so those indications are consistent. CPC is poised to make a rare and bold move of a \*possible 2-category change\* in the outlook from one month's package to the other, indicating a likelihood that they will consider going to a higher-than-usual chance for above normal precip (as opposed to just backing off to EC).

This is a pretty unusual step for CPC and is only done when confidence is high, so that is saying a lot.

(It would be equivalent to us issuing a winter weather headline and then canceling it before the storm ever gets here. We'd only cancel it if we were pretty darn confident about it.)

Dave also noted that the pattern through at least week 2 and potentially beyond continues to look stormy and progressive, with waves continuing to track across the northern Rockies into the Plains, due to a persistent high-latitude ridge.

Noreen Schwein sat in on the call, as well.

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

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**From:** Wingert, Kevin M NWO  
**Sent:** Friday, June 10, 2011 3:52 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Alright, thanks Jody.

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Friday, June 10, 2011 3:41 PM  
To: Wingert, Kevin M NWO; [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Check with [REDACTED] first in case hydro branch has some information. If not, have them contact the National Weather Service Missouri Basin River Forecast Center. They are the official river stage forecasters for the basin.

Jody

-----Original Message-----

From: Wingert, Kevin M NWO  
Sent: Friday, June 10, 2011 3:37 PM  
To: Farhat, Jody S NWD02; [REDACTED]  
Subject: Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody/[REDACTED]

Dave Cline of Shannon & Willson called 3:10 p.m. on Friday, June 10, 2011.

Cline represents railroad interests operating in and near the Yellowstone River. They are looking for a subject matter expert on projected flows of the Yellowstone River several weeks out (they have found the Advanced Hydrologic Prediction Service predictions for a week out but are looking further in the future to plan any necessary mitigation efforts).

Is there an SME who might be able to call Dave Cline of Shannon & Wilson at 206-695-6885 or [drc@shanwil.com](mailto:drc@shanwil.com)? Thanks.

Very Respectfully,

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 3:48 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** May 1 thru Jun 9 2011 - Montana Precipitation Ranking (UNCLASSIFIED)  
**Attachments:** Snotel - 2011 - ranking.htm




Classification: UNCLASSIFIED  
Caveats: NONE

Ranking of MT precipitation.

[REDACTED]  
[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

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 PUBLIC INFORMATION STATEMENT  
 NATIONAL WEATHER SERVICE GREAT FALLS MT  
 843 AM MDT FRI JUN 10 2011

...PRECIPITATION TOTALS FOR MAY AND EARLY JUNE 2011...

 HEAVY PRECIPITATION DURING THE PAST SIX WEEKS HAS PRODUCED A VERY  
 WET PERIOD ACROSS SOUTHWEST AND NORTH CENTRAL MONTANA. FOLLOWING ARE  
 PRECIPITATION TOTALS AND RANKING FOR THE PERIOD FROM MAY 1 THROUGH  
 JUNE 9.

	PRECIP	RANKING	OLD RECORD OR	RECORDS
	MAY 1-JUN 9		WETTEST YEAR	BEGAN
ALBRO LAKE SNO	14.20	WETTEST	14.20 2010	1997
ARMELLS CREEK	7.48	WETTEST	7.13 2008	1991
BENCHMARK	6.48	2ND WETTEST	6.83 2008	1985
BLACK BEAR SNO	12.70	WETTEST	11.40 2010	1983
BLOODY DICK SNO	7.00	WETTEST	6.90 2010	1989
BOULDER MTN SNO	11.70	WETTEST	10.40 2005	1978
CRYSTAL LAKE SNO	20.50	WETTEST	13.50 2007	1988
DILLON	4.85	WETTEST	4.83 2007	1929
DUPUYER CK SNO	12.80	3RD WETTEST	13.70 2008	1984
DUNKIRK	5.62	3RD WETTEST	7.85 1927	1912
FORT BENTON	7.41	3RD WETTEST	9.35 1953	1869
FROHNER MEADOW SN	8.90	WETTEST	7.60 2008	1988
GRASS RANGE	11.68	WETTEST	11.28 1981	1914
GREAT FALLS	6.58	7TH WETTEST	12.26 1953	1891
HARLEM	6.75	3RD WETTEST	7.61 1932	1896
HAVRE	5.55	6TH WETTEST	7.56 1927	1880
HOBSON	8.66	WETTEST	7.92 1981	1950
LEMHI RIDGE SNO	6.70	2ND WETTEST	6.90 2005	1990
LEWISTOWN	9.44	3RD WETTEST	9.58 1981	1896
LICK CREEK	9.10	2ND WETTEST	9.40 2008	1982
MADISON PLATEAU	8.70	3RD WETTEST	8.90 1990	1988
MARTINSDALE	8.96	2ND WETTEST	9.27 1962	1893
NEIHART	9.89	2ND WETTEST	11.69 1981	1965
ROCKY BOY	7.94	3RD WETTEST	12.30 1953	1951
ROCKER PEAK	8.00	3RD WETTEST	9.40 2005	1984
ROGERS PASS	7.69	WETTEST	7.68 1980	1965
SHELBY	6.74	4TH WETTEST	10.15 1953	1911
SHORT CREEK SNO	7.10	WETTEST	5.70 2005	1988
SHOWER FALLS SNO	10.40	2ND WETTEST	12.70 2008	1988
SIMPSON	6.97	WETTEST	6.08 2004	1948
SPUR PARK SNO	11.30	WETTEST	9.30 1997	1983
STANFORD	10.89	WETTEST	9.16 1962	1927
SUMMIT	7.01	3RD WETTEST	15.24 1964	1948





TURNER	6.96	WETTEST	6.24	1974	1948
VALENTINE	10.59	WETTEST	6.63	2007	1985
VALIER	7.46	4TH WETTEST	10.64	1964	1911
WEST YELLOWSTONE	5.83	3RD WETTEST	7.39	1963	1905
WHISKEY CREEK SNO	8.30	WETTEST	8.10	2005	1982
WOOD CREEK SNO	8.20	3RD WETTEST	9.50	1995	1989

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Tel: (406) 453-2081

[REDACTED]

---

**From:** Wingert, Kevin M NWO  
**Sent:** Friday, June 10, 2011 3:37 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** Railroads and Yellowstone River question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, [REDACTED]

Dave Cline of Shannon & Willson called 3:10 p.m. on Friday, June 10, 2011.

Cline represents railroad interests operating in and near the Yellowstone River. They are looking for a subject matter expert on projected flows of the Yellowstone River several weeks out (they have found the Advanced Hydrologic Prediction Service predictions for a week out but are looking further in the future to plan any necessary mitigation efforts).

Is there an SME who might be able to call Dave Cline of Shannon & Wilson at 206-695-6885 or [drc@shanwil.com](mailto:drc@shanwil.com)? Thanks.

Very Respectfully,

Kevin Wingert  
Public Affairs Specialist  
U.S. Army Corps of Engineers Omaha District  
Office: 402-995-2418  
Cell: 402-779-1459  
[www.nwo.usace.army.mil](http://www.nwo.usace.army.mil)

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** Michael\_Olson@fws.gov  
**Sent:** Friday, June 10, 2011 3:13 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Hang in there -

Jody: I've been thinking about you a lot these last few weeks.. I know you and your staff must be under tremendous stress, but I wanted you to know that we're sending good thoughts and prayers in your direction and we know that all of us will get through this flooding in one piece.

All the best -

Mike

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 3:01 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
[REDACTED]  
DLL-CENWO-OD-FP OPER, [REDACTED] Bertino, John J Jr  
NWO  
**Subject:** Fort Peck Spillway Releases June 10th (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Today, Fort Peck's spillway is releasing approximately 46,700 cfs with eight gates open 2.8 ft and eight gates open 2.9 ft. Pool elevation this morning was 22251.4 ft leaving 1.4 ft and 1.5 ft of freeboard on the gates. [REDACTED] Shift Operator worked up a spreadsheet of gate openings for 65,000 cfs and 70,000 cfs with different pools. I had a question on one of his pool elevations. I will talk to him tonight to clarify and send it on. His numbers are showing that we have to raise the gates about 0.3 ft for each 5,000 cfs increase at these pool elevations. My concern is that at 0.2 ft per day rise in pool, it doesn't take to many days until we are out of pool. Once the pool reaches the top of the gates, we will need to keep raising the gates to stay ahead of the pool. I do not think it would be wise to overtop the gates while they are up. I realize we have an unofficial extra aprox. 0.5 ft on the top of the gates but using that would be cutting it pretty close.

[REDACTED]  
U.S. Army Corps of Engineers  
[REDACTED]  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** NWD-MR, RCC-MAIL NWD02  
**Sent:** Friday, June 10, 2011 2:34 PM  
**To:** DLL-CENWO-FP-Operator; DLL-CENWO-GA-Operator; DLL-CENWO-OA-Operator; DLL-CENWO-BB-Operator; DLL-CENWO-GP-Operator; DLL-CENWO-FR-Operator  
**Cc:** Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD-MR, RCC-MAIL NWD02; [REDACTED] WAPA (ugpmarketer@wapa.gov); DLL-NWK-ED-HC; DLL-CENWO-ED-HA; CENWO-EOC NWO; [REDACTED]  
**Subject:** Week-end Worker (Knofczynski) (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

For your information, the scheduled worker on duty for the Water Management Division for 11-12 June will be [REDACTED] ([REDACTED]). If he cannot be reached at his office phone number, then the cell phone is [REDACTED].

In addition, if you need assistance you can contact [REDACTED] ([REDACTED]), [REDACTED].

Additional staff: [REDACTED] (4 [REDACTED]), Ke [REDACTED] ([REDACTED]), and [REDACTED].

Farhat

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 2:30 PM  
**To:** [REDACTED] Farhat, Jody S NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Thanks, that information would be beneficial as we get a lot of questions regarding travel times to various communities downstream.

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:18 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Based on some current releases and stage changes I think the travel time (leading edge) to Bismarck is approximately 16-18 hours compared to the 28-30 hours shown on the travel time plate that I sent you. When [REDACTED] has some time he will try to verify that routing time using HEC-RAS. I'll let you know what we find out.  
[REDACTED]

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 7:01 PM  
**To:** [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't know if [REDACTED] replied, but I think the short answer is yes. [REDACTED] may be able to quantify the change in travel time, but velocities are no doubt faster.

Jody

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 2:40 PM  
**To:** [REDACTED] Farhat, Jody S NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Are our river travel times significantly affected by the higher velocities we're seeing with the increased flows? I'm getting quite a few questions about travel times when we make changes in our releases...

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, May 14, 2011 2:16 PM  
To: Farhat, Jody S NWD02; [REDACTED]  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Do you have the one from the current manual? I've attached one that is intended for the updated manual. The graphics need to be cleaned up, but I think you can read it. It probably still needs some verification.

The chart shows the leading edge of the change. For example, it shows Bismarck at about 30 hours. The time to peak and stabilize is somewhat dependant on the magnitude of the increase/decrease and whether there's any peaking, etc. As a rule of thumb, I would use something closer to 2 days for it to stabilize at Bismarck.

[REDACTED]  
-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Saturday, May 14, 2011 11:18 AM  
To: [REDACTED]  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - I don't recall either, but I suspect that [REDACTED] can answer the question. I know he has looked at the travel time chart and made a few adjustments.

Jody

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, May 14, 2011 11:09 AM  
To: Farhat, Jody S NWD02  
Subject: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Jody,  
Do we have an updated chart for river travel times below Garrison? I have an old one and when discussing it with the NWS, they asked if the chart shows the time for the leading edge of our changes or the time that it would take to peak and stabilize? I did not know, do you?

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]

---

**From:** Ruch, Robert J COL NWO  
**Sent:** Friday, June 10, 2011 2:28 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Blair river level (UNCLASSIFIED)  
**Attachments:** Talking points Blair Rating Curve Change.docx

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 2:25 PM  
**To:** MRJIC  
**Cc:** [REDACTED] Thomas, Kimberly S NWO; Bertino, John J Jr  
NWO; [REDACTED] Ruch, Robert J COL NWO; Jordano, James J  
LTC NWO; Blechinger, Erik T NWO  
**Subject:** RE: Blair river level (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

This is not an increase in crest, but rather an adjustment to the rating curve

Mr. Douglas is correct regarding the inundation maps.

Please see the attached talking points.

-----Original Message-----

**From:** MRJIC  
**Sent:** Friday, June 10, 2011 12:13 PM  
**To:** Remus, John I NWO  
**Subject:** FW: Blair river level (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** Dan Douglas Region 5-6 E.M.A. [<mailto:dan@region5-6.org>]  
**Sent:** Friday, June 10, 2011 7:49 AM  
**To:** MRJIC  
**Subject:** Blair river level

To understand correctly Missouri River at Blair will crest between 32-34 feet, inundation depths for the Washington County area will be as mapped previously. Inundation area or depths should not increase due to increased river crest?

Thank You  
Dan Douglas



DAN DOUGLAS  
Village of Arlington E.M.  
Deputy E.M. Washington Co.  
REGION 5-6 E.M.A.  
cell 402-679-9015  
email [dan@region5-6.org](mailto:dan@region5-6.org)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

### Talking points - Blair Gage Long Term Forecast Change

Long term crest forecasts at locations downstream from Gavins Point are based on releases from Gavins Point of 150,000 cfs combined with tributary inflows based on normal precipitation.

Discharges computed at downstream locations are converted to stages at the stream gage locations using a relationship between stage and discharge.

Adjustments to the stage-discharge relationship at the Blair gage have been made in order to match the observed stages. These adjustments have been necessary since observed stages were exceeding expected stages for the current discharges at Blair.

The Blair gage is a stage only or un rated gage. Discharges are not measured at this location. Discharges have to be calculated in order to develop the rating curve. Adjustments to gages, especially unrated gages, are not unusual when dealing with extreme events.

These adjustments have raised the forecasted long term crests by 2 feet at Blair.

The current long term crest forecast at Blair is for a stage of 32 to 34 feet. Previous forecast was for stage of 30 to 32 feet.

The Blair gage was not used to calibrate the models the Corps used to compute the water surface elevations. Therefore, this change does not affect the flood inundation maps.

The USGS will be obtaining several discharge measurements over during the flood event to verify the adjusted rating curve.



## Missouri River Basin Water Management Situation Report – 6-10-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows are currently occurring into Fort Peck and Garrison Reservoirs. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/10/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	83.0	53.6	2250	2251.4	0.2
Garrison	124.0	130.6	1854	1853.2	0.0
Oahe	135.0	150.5	1620	1618.8	-0.1
Big Bend	140.0	138.7	1423	1419.7	0.3
Fort Randall	148.0	136.3	1375	1361.6	0.2
Gavins Point	146.0	140.1	1210	1207.6	0.4

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). Also, less of the exclusive flood control storage is being used at Garrison and Oahe. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. Because the spillway gates are open at Fort Peck and the reservoir is now being surcharged over the top of the exclusive flood control zone, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/10/11)**

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,795	18,463	-332	971	-34
Garrison	23,492	23,821	329	1,489	22
Oahe	22,702	23,137	435	1,102	39
Big Bend	1,605	1,798	193	60	100
Fort Randall	4,112	5,418	1,306	985	100
Gavins Point	383	450	67	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out will be at the currently anticipated maximum releases at all six reservoirs. Also note that the anticipated maximum release is now 60 kcfs at Fort Peck. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/10/11)**

Reservoir	Yesterday	Forecast	7 days out	14 days out	Pre-2011
	kcfs	Today	17 June	24 June	Record
		kcfs	kcfs	kcfs	kcfs
Fort Peck	53.6	60.0	60	60	35
Garrison	130.6	135.0	150	150	65
Oahe	150.5	150.0	150	150	59
Big Bend	138.7	150.0	150	150	74
Fort Randall	136.3	140.0	148	148	67
Gavins Point	140.1	145.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/10/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.5	20-21	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.2	35-37	mid-Jun thru July
Decatur, NE	35	36.7	40-42	mid-Jun thru July
Omaha, NE	29	31.0	34-36	mid-Jun thru July
Nebraska City, NE	18	23.5	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.3	27-32	mid-Jun thru July
Kansas City, MO	32	25.6	30-39	mid-Jun thru July
Waverly, MO	20	24.8	27-31	mid-Jun thru July
Boonville, MO	21	22.4	27-33	mid-Jun thru July
Hermann, MO	21	23.1	27-33	mid-Jun thru July

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 1 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 2 is yesterday's mountain snowpack update by the Corps.

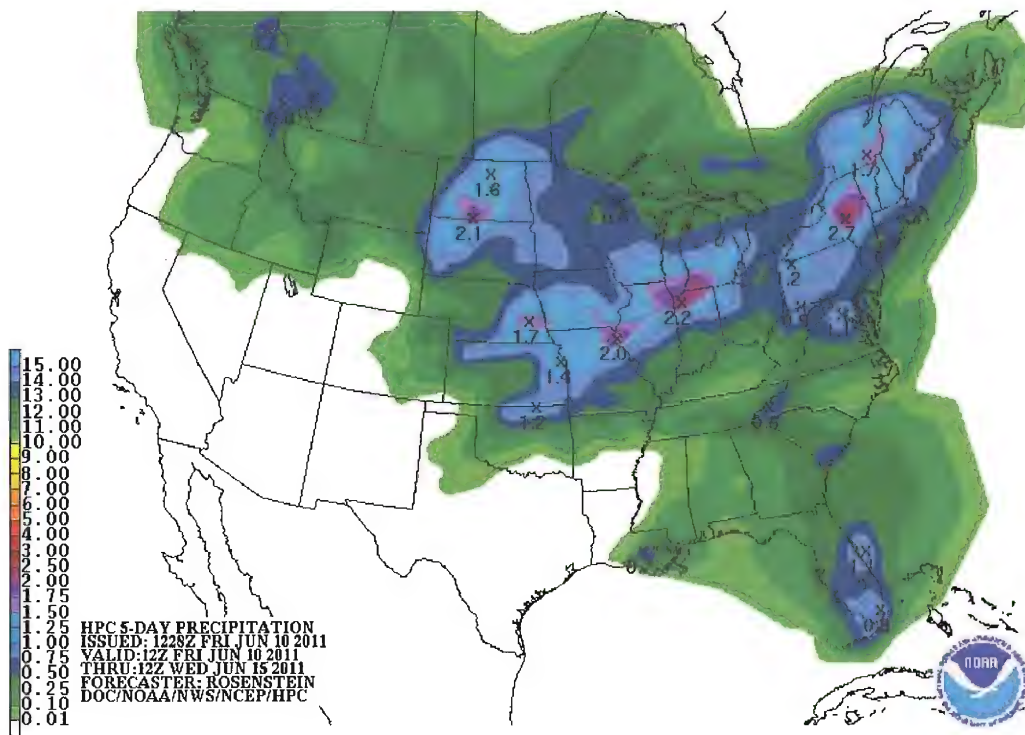
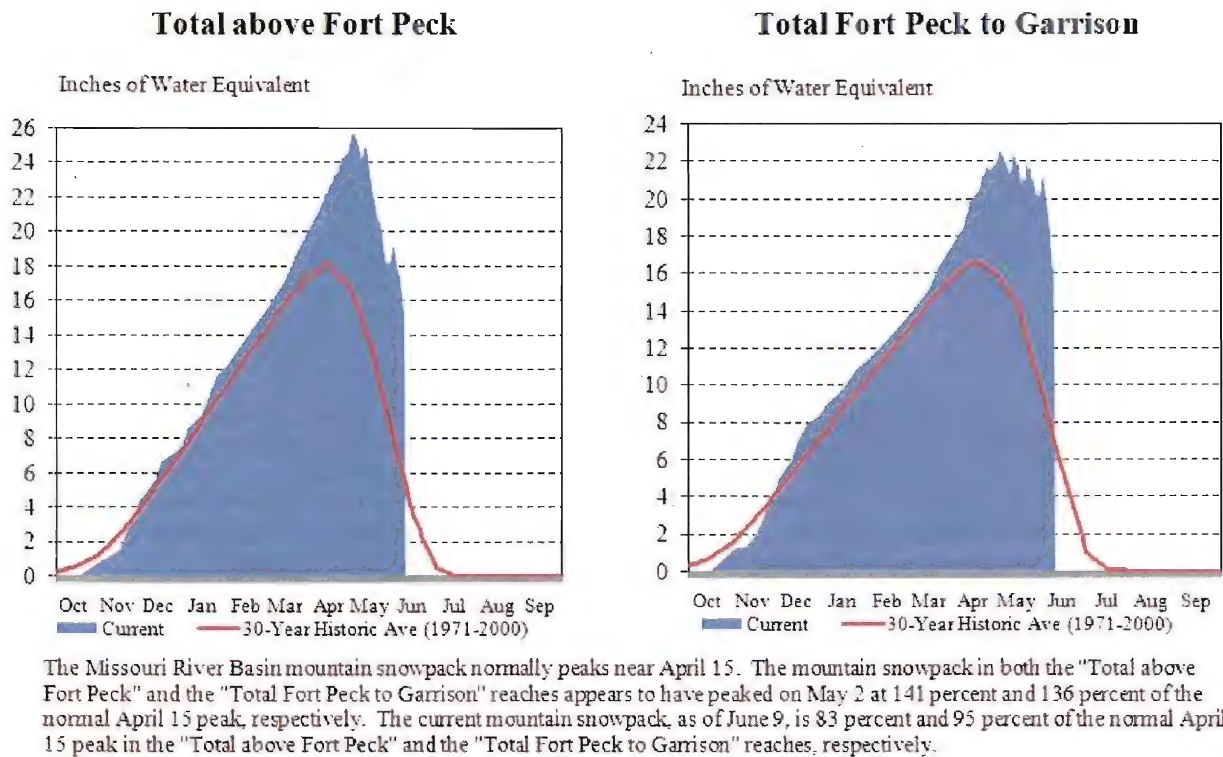


Figure 1. 5-day total QPF ending 0700 Wednesday, June 15, 2011.



June 9, 2011

Provisional data. Subject to revision.

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 9, 2011.

### Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood due to three slump failures in the past week at river stages that have not yet exceeded those experienced in the high flows of 2010.

Figure 3 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 13 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week show a rise to 25.6 feet by next Friday, June 17.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.



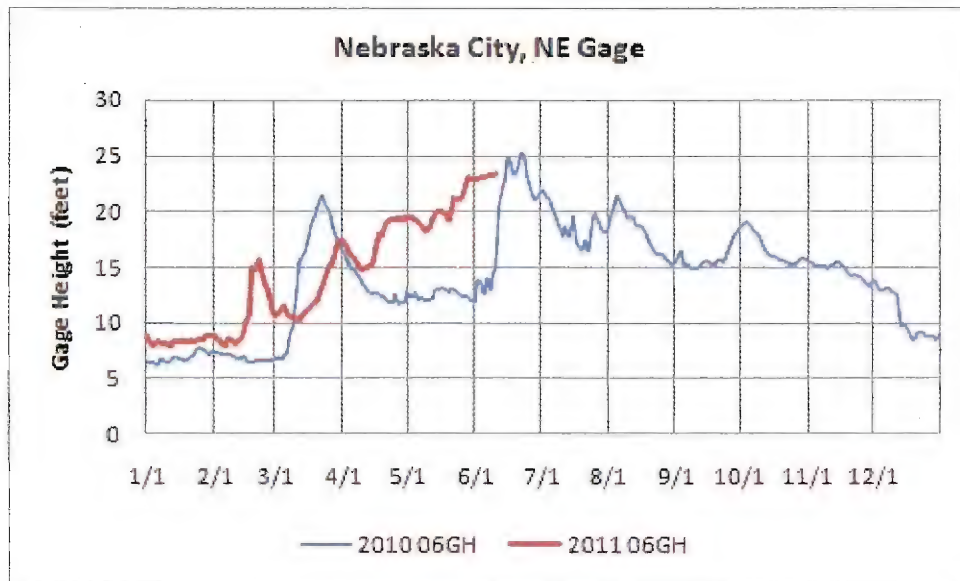


Figure 3. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains fell for the fourth day in a row in Montana on ground that is likely still saturated from heavy rains the previous 2 to 3 weeks and over parts of Wyoming, North Dakota, and South Dakota. Figure 4 shows the amount of rain that fell.

NWS Central Region: Current 1-Day Observed Precipitation  
Valid at 6/10/2011 1200 UTC- Created 6/10/11 17:41 UTC

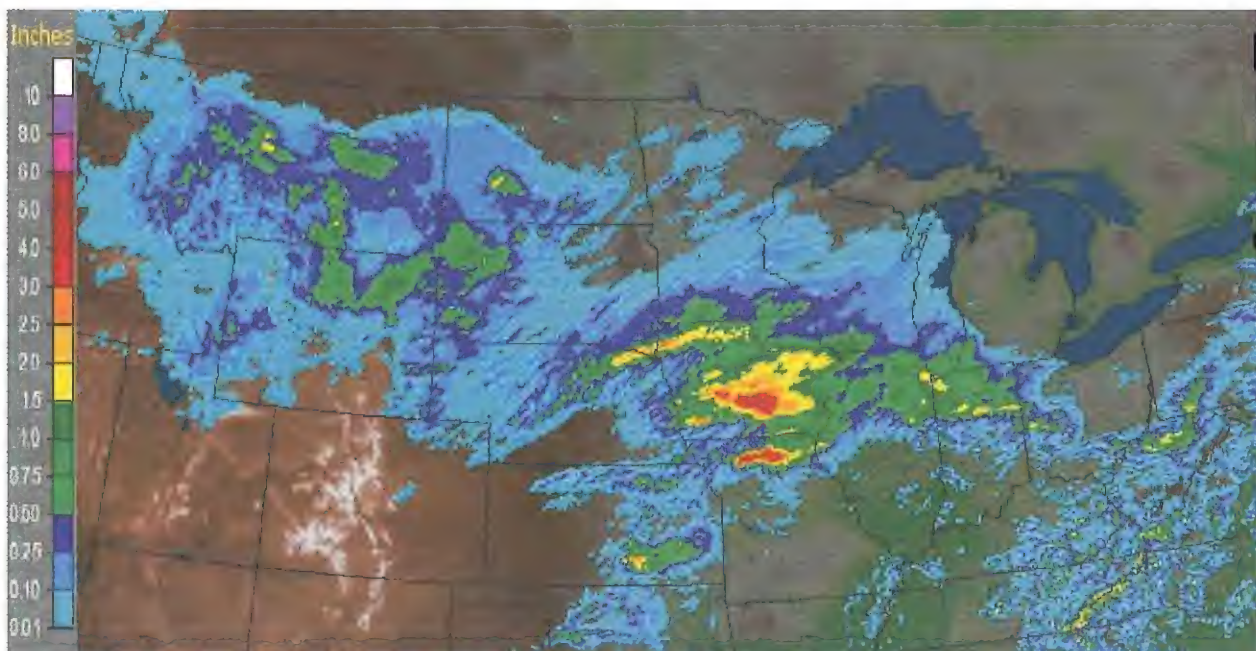


Figure 4. Rainfall on the Central Region of the United States for June 9, 2011.



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:53 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** May Precipitation Departure Areas in the Missouri Mainstem Basin (UNCLASSIFIED)  
**Attachments:** May2011PrecipitationDeparture.jpg

Classification: UNCLASSIFIED  
Caveats: NONE

THIS IS A DRAFT!! NOT FINAL!!

FYSA. [REDACTED] is still working on this graphic. We're working with the NWS climate center to get recurrence intervals assigned to various stations around the area. We'll add those stations along with the recurrence intervals when it becomes available. Their first run indicated that almost all will likely exceed 500-yr and some will exceed 10,000-yr. We're asking them to re-run to verify since because once we let this loose, it will be hard to pull back.

To give some perspective to these areas:

The area of the state of Montana is 147,000 sq miles or 94 million acres The area of the state of Nebraska is 77,000 sq miles or 49 million acres The area of the state of Iowa is 56,000 sq miles or 36 million acres

- [REDACTED]

[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED] (fax)

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:16 PM  
**To:** [REDACTED]  
**Subject:** May Precipitation Departure Areas in the Missouri Mainstem Basin (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Some preliminary numbers for the area of heavy rain centered over Montana, northern/central Wyoming, and the western Dakotas

+3.0 inch departure (2X normal amount) = 153,600 sq mi, 98 million acres  
+5.0 inch departure = 79,000 sq mi, 50 million acres 6.0 inch departure  
+(3X normal amount) = 50,100 sq mi, 32 million acres 8.0 inch departure  
+= 9,000 sq mi, 5.8 million acres

[REDACTED]  
USACE, Northwestern Division  
Missouri Basin Water Management Division

~~TOP SECRET~~  
~~SECRET~~

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:53 PM  
**To:** Farhat, Jody S NWDO [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** May Precipitation Departure Areas in the Missouri Mainstem Basin (UNCLASSIFIED)  
**Attachments:** May2011PrecipitationDeparture.jpg

Classification: UNCLASSIFIED  
Caveats: NONE

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- [REDACTED]

[REDACTED]  
[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED] (fax)

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:16 PM  
**To:** [REDACTED]  
**Subject:** May Precipitation Departure Areas in the Missouri Mainstem Basin (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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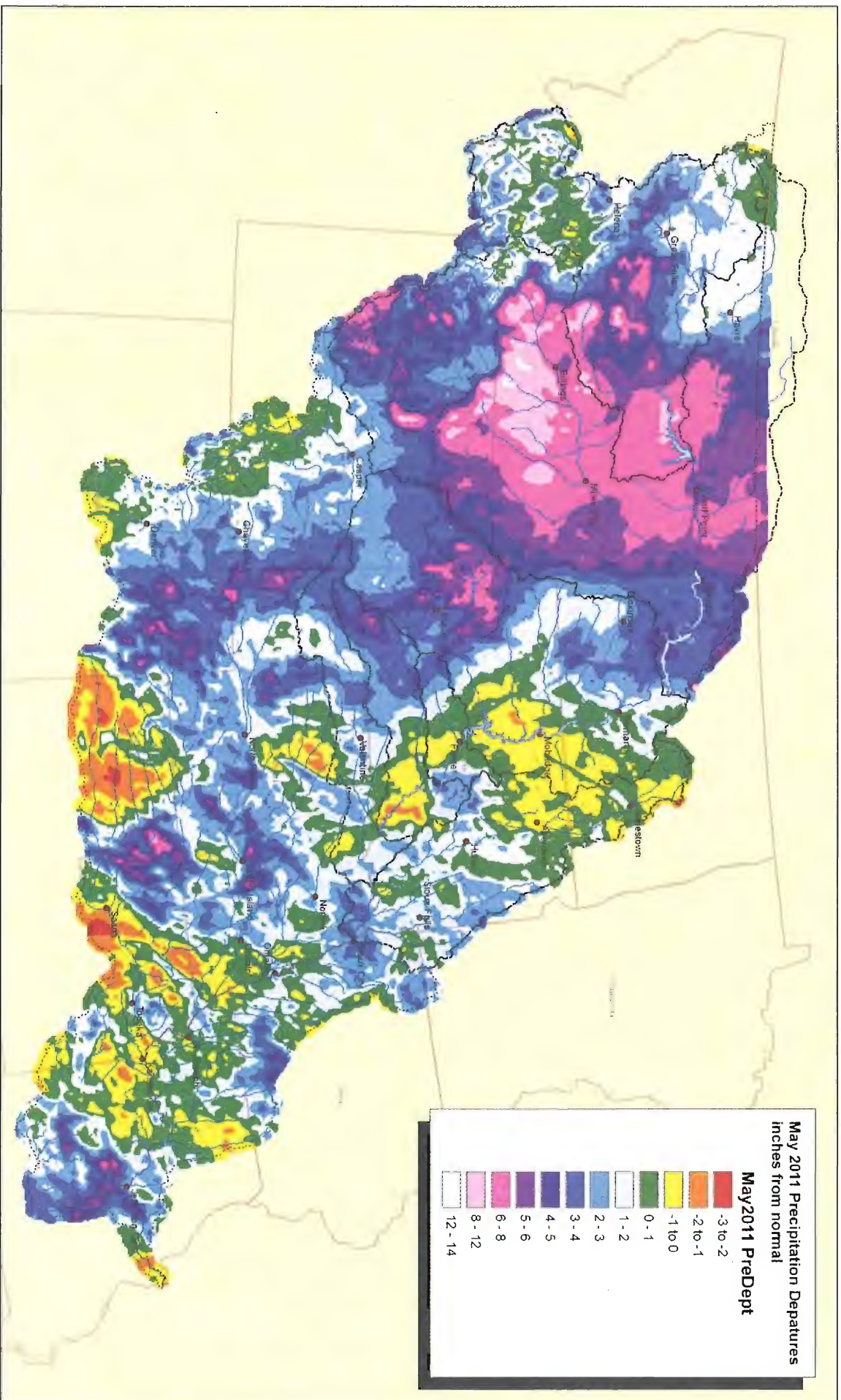
[REDACTED]  
USACE, Northwestern Division  
Missouri Basin Water Management Division

401-996-3871

kevin.d.stamm@sace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 1:18 PM  
**To:** Farhat, Jody S NWD02 [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
Based on some current releases and stage changes I think the travel time (leading edge) to Bismarck is approximately 16-18 hours compared to the 28-30 hours shown on the travel time plate that I sent you. When [REDACTED] has some time he will try to verify that routing time using HEC-RAS. I'll let you know what we find out.  
[REDACTED]

-----Original Message-----  
**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 09, 2011 7:01 PM  
**To:** [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] I don't know if [REDACTED] replied, but I think the short answer is yes. [REDACTED] may be able to quantify the change in travel time, but velocities are no doubt faster.  
[REDACTED]

-----Original Message-----  
**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 2:40 PM  
**To:** [REDACTED], Farhat, Jody S NWD02  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Are our river travel times significantly affected by the higher velocities we're seeing with the increased flows? I'm getting quite a few questions about travel times when we make changes in our releases...

-----Original Message-----  
**From:** [REDACTED]  
**Sent:** Saturday, May 14, 2011 2:16 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO  
[REDACTED]

Do you have the one from the current manual? I've attached one that is intended for the updated manual. The graphics need to be cleaned up, but I think you can read it. It probably still needs some verification.

The chart shows the leading edge of the change. For example, it shows Bismarck at about 30 hours. The time to peak and stabilize is somewhat dependant on the magnitude of the increase/decrease and whether there's any peaking, etc. As a rule of thumb, I would use something closer to 2 days for it to stabilize at Bismarck.

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Saturday, May 14, 2011 11:18 AM

To: [REDACTED]  
Subject: RE: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

[REDACTED] - I don't recall either, but I suspect that [REDACTED] can answer the question. I know he has looked at the travel time chart and made a few adjustments.

Jody

-----Original Message-----

From: [REDACTED]

Sent: Saturday, May 14, 2011 11:09 AM

To: Farhat, Jody S NWD02

Subject: River Travel Time (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Jody,

Do we have an updated chart for river travel times below Garrison? I have an old one and when discussing it with the NWS, they asked if the chart shows the time for the leading edge of our changes or the time that it would take to peak and stabilize? I did not know, do you?

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

Classification: UNCLASSIFIED

Caveats: FOUO

**From:** matt bunk [bunk.matt@gmail.com]  
**Sent:** Friday, June 10, 2011 12:59 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Interview with Jody Farhat (UNCLASSIFIED)

Will do. Thanks.

On Fri, Jun 10, 2011 at 10:35 AM, Farhat, Jody S NWD02 <[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Sounds good. You can call me at the number below.

Jody

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

-----Original Message-----

From: matt bunk [<mailto:bunk.matt@gmail.com>]

Sent: Friday, June 10, 2011 11:52 AM  
To: Farhat, Jody S NWD02  
Subject: Re: Interview with Jody Farhat (UNCLASSIFIED)

That's OK. How about 4 p.m.?

On Fri, Jun 10, 2011 at 7:17 AM, Farhat, Jody S NWD02  
<[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Matt - sorry, since I sent my message I had another interview get set  
up for  
2:00. What I have left is now until 10:30, 12:30-1:00, or 4:00 -  
4:30.

Sorry for the inconvenience.

Jody

-----Original Message-----



From: matt bunk [<mailto:bunk.matt@gmail.com>]  
Sent: Friday, June 10, 2011 8:32 AM  
To: Farhat, Jody S NWD02  
Subject: Re: Interview with Jody Farhat (UNCLASSIFIED)

Thanks, Jody. How about 2 p.m.?  
-Matt

On Fri, Jun 10, 2011 at 6:07 AM, Farhat, Jody S NWD02  
<[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bunk,

I would be happy to visit with you regarding the operation of  
the reservoir  
system per your request in an email to Kevin Wingert  
yesterday.

I'm available from 9-10 this morning or 2-3 this afternoon.  
Let me know what  
time would work best for you.

Thanks,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 12:57 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD, [REDACTED]  
**Subject:** RE: Noon Conference call with HQ (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Actually, today I've got an interview at that time, so [REDACTED] will be on the call. If he's not available, [REDACTED] will be on.

Jody

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 10, 2011 12:46 PM  
**To:** Love, Raymond E MAJ NWD  
**Subject:** RE: Noon Conference call with HQ (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I'll be on every day, and if for some reason I can't make it, I'll ensure [REDACTED] or [REDACTED] are on.

-----Original Message-----

**From:** Love, Raymond E MAJ NWD  
**Sent:** Friday, June 10, 2011 9:53 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** Noon Conference call with HQ

Jody,

I wanted to confirm that you are available for the noon conference call with HQ (daily).

Based on their guidance yesterday, what I want to have a two pronged approach to the call. I would like to basically start off by passing it to you to give an update on current releases, any changes in the last twenty four hours, and what you see happening over the next 48 hours.

The goal, is to provide them with enough information that a call on Saturday and Sunday is not needed. Monday through Thursdays, you would just talk out 24 hours...

After you talk, I will then give more of a overall summary of the Situation and then turn it over to HQ for questions.

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers

Desk: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil  
[REDACTED]@usace.army.smil.mil

Emergency Satellite Phone: [REDACTED] B Emergency Cell: [REDACTED]

FOR OFFICIAL USE ONLY - This email and any attachments may contain information that is protected from disclosure by the Privacy Act of 1974 and should be viewed only by those with an official "need to know." If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the content of this information is prohibited. If you have received this communication in error, please notify me immediately by email, delete the original message, and destroy any hard copies you may have created. Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 10, 2011 12:30 PM  
**To:** Anderson, G Witt NWD; Ruch, Robert J COL NWO; Farhat, Jody S NWD02  
**Cc:** [REDACTED] Blechinger, Erik T NV [REDACTED] Thomas, Kimberly S NWO [REDACTED]  
**Subject:** Re: North Dakota Legislative Assembly (UNCLASSIFIED)

Roger all. Thanks.

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** Ruch, Robert J COL NWO; McMahon, John R BG NWD; Farhat, Jody S NWD02  
**Cc:** [REDACTED] Blechinger, Erik T NWO; [REDACTED] Thomas, Kimberly S NWO; [REDACTED]  
**Sent:** Fri Jun 10 10:00:15 2011  
**Subject:** RE: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Bob, this is principally Reservoir Control action, with coordination and review among key members of the team. Agree, need input from attorneys on bullet 4. Once we have response prepared we can decide who sends.

Jody, for action. Thanks,

Witt

-----Original Message-----

**From:** Ruch, Robert J COL NWO  
**Sent:** Friday, June 10, 2011 9:56 AM  
**To:** McMahon, John R BG NWD  
**Cc:** [REDACTED] Blechinger, Erik T NWO; Farhat, Jody S NWD02; Anderson, G Witt NWD; [REDACTED] Thomas, Kimberly S NWO; [REDACTED]  
**Subject:** North Dakota Legislative Assembly (UNCLASSIFIED)

Sir,

Attached is a request for information from the ND Legislative Assembly addressed to me. Frankly, I think most of the questions are really RCC answers and are quite easily answered. Bullets 1,2,3,5 could be answered in very short order. I leave bullet 4 to the attorneys to advise on but I believe an official FOIA request is required. Either way we should begin to gather that information.

As these questions are really RCC related do you want the District to reply or the Division? I think a prompt reply by early next week is advisable.

V/R,

COL Bob Ruch

Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

From: [REDACTED]  
Sent: Friday, June 10, 2011 10:48 AM  
To: Ruch, Robert J COL NWO; Thomas, Kimberly S NWO; [REDACTED]  
[REDACTED]  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

During the City update today Congressman Rick Berg presented me with the attached RFI regarding current Missouri River flooding. He wanted me to follow up on how long it would take to get a response to the RFI, I responded that I would contact you and provide a suspense. Also the Mayor of Bismarck turned over the facilitator responsibilities of the daily meeting to the Bismarck EOC Director. Therefore future USACE presence at the daily meeting is not required. However I did explain to the Director that we would be available if any questions or issues came about. Subject to your approval I will discontinue presenting at the City meeting and provide the City with daily input.

V/r

[REDACTED]  
[REDACTED]  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 12:20 PM  
**To:** Erdman, Phil (Johanns)  
**Cc:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: Timeline

Phil -

Archived daily precipitation information is available on the NWS website at  
<http://water.weather.gov/precip/>

Another good source of information are the many press releases Water Management and the Omaha District have issued since the first of May. They're available on the website and will provide information at key points in time when operation of the system was changing due to weather conditions. <http://www.nwo.usace.army.mil>

We can pull the archived releases if you want, but if it's the full analysis, it typically occurs during the post flood report. The short of it is that even if we had known this historic runoff was coming, record releases from all 6 mainstem dams would have been necessary to handle the runoff. Based on our forecasted 44 MAF of runoff from March through July, we would likely have needed releases in the range of 85,000 to 90,000 cfs from the lower 5 dams for the period of 1 March through this fall. Although significantly lower than the planned release, these would be far above previous records and they would have needed to begin on 1 March when the river was still ice covered. Had we waited until the ice went off the river and the plains snowpack melted, releases of over 100,000 cfs would certainly have been required.

In reality, we had no basis on which to increase flows to historic levels until the extraordinary rainfall event which resulted in a record runoff in May.

Again, this is just a quick synopsis. A more detailed review will be conducted following the flooding this year to assess the operation of the reservoir system, its effects, and to learn where improvements or adjustments might be warranted. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen. Keep in mind that the 14 year process which led to the Master Manual is what dictates how we operate the system.

Let me know if you have any questions or if this suffices for now.

Thanks,  
[REDACTED]

-----Original Message-----

**From:** Erdman, Phil (Johanns) [[mailto:Phil\\_Erdman@Johanns.senate.gov](mailto:Phil_Erdman@Johanns.senate.gov)]  
**Sent:** Tuesday, June 07, 2011 5:05 PM  
**To:** [REDACTED]  
**Subject:** Timeline

[REDACTED]

Do you have a timeline of decisions the Corps made and when they made them (points in time of what amounts would be released and then subsequent announcements)? Is it on the website?

I am trying to piece that together for my benefit.

Phil Erdman

[Phil\\_Erdman@Johanns.senate.gov](mailto:Phil_Erdman@Johanns.senate.gov)

-----  
Sent via wireless device.

[REDACTED]

---

**From:** Anderson, G Witt NWD  
**Sent:** Friday, June 10, 2011 12:00 PM  
**To:** Ruch, Robert J COL NWO; McMahon, John R BG NWD; Farhat, Jody S NWD02  
**Cc:** [REDACTED] Blechinger, Erik T NWO; [REDACTED] Thomas, Kimberly S NWO; [REDACTED]  
**Subject:** RE: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Bob, this is principally Reservoir Control action, with coordination and review among key members of the team. Agree, need input from attorneys on bullet 4. Once we have response prepared we can decide who sends.

Jody, for action. Thanks,

Witt

-----Original Message-----

**From:** Ruch, Robert J COL NWO  
**Sent:** Friday, June 10, 2011 9:56 AM  
**To:** McMahon, John R BG NWD  
**Cc:** [REDACTED] Blechinger, Erik T NWO; Farhat, Jody S NWD02; Anderson, G Witt NWD; [REDACTED] Thomas, Kimberly S NWO; [REDACTED]  
**Subject:** North Dakota Legislative Assembly (UNCLASSIFIED)

Sir,

Attached is a request for information from the ND Legislative Assembly addressed to me. Frankly, I think most of the questions are really RCC answers and are quite easily answered. Bullets 1,2,3,5 could be answered in very short order. I leave bullet 4 to the attorneys to advise on but I believe an official FOIA request is required. Either way we should begin to gather that information.

As these questions are really RCC related do you want the District to reply or the Division? I think a prompt reply by early next week is advisable.

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Friday, June 10, 2011 10:48 AM



To: Ruch, Robert J COL NWO; Thomas, Kimberly S NWO; [REDACTED]  
Cc: [REDACTED]  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

During the City update today Congressman Rick Berg presented me with the attached RFI regarding current Missouri River flooding. He wanted me to follow up on how long it would take to get a response to the RFI, I responded that I would contact you and provide a suspense. Also the Mayor of Bismarck turned over the facilitator responsibilities of the daily meeting to the Bismarck EOC Director. Therefore future USACE presence at the daily meeting is not required. However I did explain to the Director that we would be available if any questions or issues came about. Subject to your approval I will discontinue presenting at the City meeting and provide the City with daily input.

V/r

[REDACTED]  
[REDACTED]  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** Ruch, Robert J COL NWO  
**Sent:** Friday, June 10, 2011 11:56 AM  
**To:** McMahon, John R BG NWD  
**Cc:** [REDACTED] Blechinger,  
Erik T NWO; Farhat, Jody S NWD02; Anderson, G Witt NWD; [REDACTED] Thomas,  
Kimberly S NWO; [REDACTED]  
**Subject:** North Dakota Legislative Assembly (UNCLASSIFIED)  
**Attachments:** RFI.PDF

Sir,

Attached is a request for information from the ND Legislative Assembly addressed to me. Frankly, I think most of the questions are really RCC answers and are quite easily answered. Bullets 1,2,3,5 could be answered in very short order. I leave bullet 4 to the attorneys to advise on but I believe an official FOIA request is required. Either way we should begin to gather that information.

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V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE  
(402) 995-2001  
<https://www.nwo.usace.army.mil/>

-----Original Message-----

**From:** Clark, Mark D HQ02  
**Sent:** Friday, June 10, 2011 10:48 AM  
**To:** Ruch, Robert J COL NWO; [REDACTED] NWO; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

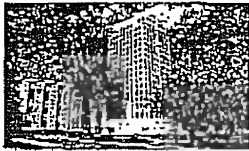
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V/r

[REDACTED]  
[REDACTED]  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



HOUSE OF REPRESENTATIVES  
**NORTH DAKOTA  
LEGISLATIVE ASSEMBLY**



REPRESENTATIVE  
TODD PORTER

District 34

4604 Borden Harbor Drive SE

Mandan, ND 58554-7961

tkporter@nd.gov

STATE CAPITOL  
600 EAST BOULEVARD  
BISMARCK, ND 58505-0360

COMMITTEES:  
Human Services  
Natural Resources, Chairman

June 9, 2011

Colonel Robert Ruch  
Commander  
Omaha District, Northwestern Division  
United States Army Corps of Engineers  
1616 Capitol Avenue, Suite 365  
Omaha, NE 68102-4901

Dear Colonel Ruch:

This letter is a request for information relating to the current Missouri River flooding in Mandan/Bismarck, North Dakota. Specifically, I would like the following information:

- Why did the United States Army Corps of Engineers stop releasing water at an increased rate around the middle of March 2011 and not increase releases from the Garrison Dam until May 6<sup>th</sup> 2011, especially given the fact that the reservoir was full and the snow pack was at least 140% of normal?
- What role, if any, did the snowpack in the upper portion of the Missouri River Basin play in the management of the water releases from the Garrison Dam?
- Given the fact that the reservoir system was full in 2010, why weren't the releases timed to prevent the catastrophic event that we are currently experiencing?
- Please provide any records regarding the decision to delay Garrison Dam releases and any internal memos/emails discussing the decisions to delay the releases and slow the releases in 2011.
- What part did the nesting season of the piping plover play in any water management decisions?

Thank you for your responses to this inquiry.

Sincerely,

Todd Porter

State Representative

Cc: Senator John Hoeven  
Senator Kent Conrad  
Congressman Rick Berg

**From:** matt bunk [bunk.matt@gmail.com]  
**Sent:** Friday, June 10, 2011 11:52 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Interview with Jody Farhat (UNCLASSIFIED)

That's OK. How about 4 p.m.?

On Fri, Jun 10, 2011 at 7:17 AM, Farhat, Jody S NWD02 <[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Matt - sorry, since I sent my message I had another interview get set up for 2:00. What I have left is now until 10:30, 12:30-1:00, or 4:00 - 4:30.

Sorry for the inconvenience.

Jody

-----Original Message-----

From: matt bunk [<mailto:bunk.matt@gmail.com>]  
Sent: Friday, June 10, 2011 8:32 AM  
To: Farhat, Jody S NWD02  
Subject: Re: Interview with Jody Farhat (UNCLASSIFIED)

Thanks, Jody. How about 2 p.m.?  
-Matt

On Fri, Jun 10, 2011 at 6:07 AM, Farhat, Jody S NWD02  
<[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bunk,

I would be happy to visit with you regarding the operation of the reservoir system per your request in an email to Kevin Wingert yesterday.

I'm available from 9-10 this morning or 2-3 this afternoon. Let me know what time would work best for you.

Thanks,  
Jody

Jody Farhat, P.E.

Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** Anderson, G Witt NWD  
**Sent:** Friday, June 10, 2011 11:46 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** Blechinger, Erik T NWO  
**Subject:** FW: Scanned Document (UNCLASSIFIED)  
**Attachments:** document2011-06-10-092924.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, my quick skim is this is critical of the MM, not you. But, another set of points we'll need to have responses to.

Thanks,

Witt

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 9:40 AM  
**To:** Anderson, G Witt NWD; Blechinger, Erik T NWO  
**Cc:** [REDACTED], Tipton, Robert A Col NWD  
**Subject:** FW: Scanned Document (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Witt/Eric,

I found this Fax addressed to BG McMahon on the machine near BMD. I'm not sure if you have seen it, and wanted to ensure you had a copy. It is very critical of Jody and a copy was sent to Senators Johanns and Harkin.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Northwestern Division, USACE  
Phone: (505) [REDACTED]  
BB: [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 9:34 AM  
**To:** [REDACTED]  
**Subject:** FW: Scanned Document

[REDACTED]  
As requested. The last page is a copy of a copy of a poor quality map. If you would like me to try again I will.

Have a nice day.

[REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Friday, June 10, 2011 9:29 AM  
To: [REDACTED]  
Subject: Scanned Document

Please see the attached document.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



BART WILLOUGHBY

June 8, 2011

First Class Mail and Facsimile at (503) 808.3749

Brigadier General John R. McMahon  
US Army Corps of Engineers  
Northwestern Division  
Post Office Box 2870  
Portland, OR 97208-2870

**Re: Missouri River Flood Avoidable**

Dear Brigadier General McMahon:

Attached, please find the letter with exhibits delivered to Nebraska Senator Mike Johanns. Iowa Senator Tom Harkin also received the letter that is self explanatory in some detail. As stated in the letter, my family, relatives and many families I grew up with are located in the Siouxland area and engaged, in the exercise of preparing for water release from Gavins Point Dam that simply put, was avoidable.

General, I am shocked at the performance of the subordinates under your command, charged with management of flood control on the Missouri River, the largest reservoir system in the United States. Jody Farhat, Chief of Missouri River Basin water management in Omaha, Nebraska told the Associated Press on June 3, 2011, *"the agency made no mistakes and has managed releases in accordance with its manual"*.

Since my letter, to Senators Johanns and Harkin, I managed to download the Master Manual<sup>1</sup> in PDF Format approximately 28.0 Mbytes. My analysis, at this time is limited to Section VI. Hydrological Forecasts pages VI-1 through VI-18 relevant to the current release events along the 15 Missouri River dam system managed by the USACE. When taking a close analytical view of the Master Manual for the Missouri River, one can only walk away, shaking their head and wondering. How many manuals of this type does the military use in the strategic defense of this nation? A subject I do not wish to broach at this time.

The revision date of 2006 places this manual at five years old and where technology and software has radically changed. However, there are assumptions made in this portion of the manual that are flawed. Prime example, *"The Corps has developed runoff simulation and stream-flow prediction models for only those areas of Missouri River Basin that have the most significant impact on the Corps System regulation responsibilities"*. This indicates that only a partial simulation is performed and not a system wide simulation

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<sup>1</sup> Missouri River Mainstream Reservoir System, Master Water Control Manual, Missouri River Basin, US Army Corps of Engineers, Northwestern Division, Revised March 2006.

of the 15 dams affected by runoff and stream-flow. Obviously, the USACE News Releases, *"High Flows thrust Missouri River Basin into uncharted territory"* (May 24, 2011); *"Corps updates reservoir release forecast to unprecedented levels"* (May 28, 2011); *"Garrison Dam Spillway gates to open for floodwaters for first time"* (May 31, 2011); *"Big Bend Dam spillway gates to open for floodwaters for first time"* (June 2, 2011) are direct indications that simulated runoff and stream flow predictions are extremely limited and are problematic to flood control issues.

Accordingly *"Flood risk must be considered at all times"* and in the same paragraph the Corps states, *"releases through the power plants are scheduled, to the extent reasonably possible, at the times and rates that will maximize revenue to the Federal Government"*. The sentence indicates two conditions "normal" and "below-normal" runoff. So, if the conditions are such that releases are "above normal" those conditions should be avoided, since the Federal Government's revenue cannot be maximized.

In 6-01.1 Role of the Corps' Hydrologic Forecasting indicates, *"Flood control...System regulation requires accurate, continual short-range and long-range runoff, stream flow, and river-stage forecasting"*. *"Whenever possible, the NWS (National Weather Service) and hydrologic forecasts are used"*. *"The RCC prepares long-range runoff forecasts based upon estimates of rainfall and snowmelt runoff in the basin"*. In 6-01.2.1 there indicates *"Currently the NWS has WSFO (Weather Service Forecast Offices) at the following locations with web links that issue or disseminate local weather forecasts: Montana, Great Falls, Glasgow, Billings & Missoula"*. In 6-01.2.1.1 there indicates, *"The Missouri Basin River Forecast Center, located in Prairie Hill Missouri, prepares forecasts for specified locations along the streams throughout the Missouri River Basin"*. From all indications, one of two things happened. Someone at USACE failed to interpret the hydrologic data from the Missoula, Montana NWS, and Ray Nickless available March 2011 (EX-B letter to Johanns). Alternatively, someone at USACE, charged with dissemination of the data ignored the importance of the information. Regardless, this information was extremely important to the long-range snowmelt and hydrologic forecast because ten dams are located in Montana.

Under, 6-01.2.1.4. *"The MBRFC also issues long-term forecasts called Spring Snowmelt Outlooks. These forecasts are generally issued in February and March, with additional forecasts provided as conditions warrant. Numerical outlooks include two crest forecasts. The first crest forecast is based on a normal melt of existing snow cover. The second crest forecast is based on a normal melt of snow cover plus normal precipitation through the melt period"*. As of March 2011 data collected by the National Water and Climate Control Center, indicated 90 measuring sites in Idaho, Montana and Wyoming that a 20-year record of snow pack existed in the Centennial Mountains, the measuring point for the Missouri River (EX-A letter to Johanns). Someone at USACE charged with interpretation and dissemination of the data failed or ignored the information entirely. This was the most important data of all, given the amount of water locked up in the Centennial Mountains with potential for record flooding in the Missouri River. Unfortunately, this event placed USACE in the uncharted territory USACE now finds itself entrapped.

General McMahon, I am not attempting to be adversarial to your position or command authority, but rather injecting intelligent analysis relating to a natural process

June 8, 2011

that affects the livelihood, lives and property of many who I love and care deeply for. I am sure; we can agree, this process is not rocket science but the management of a very large natural system with some unknowns. However, those unknowns are quantifiable with appropriate data from accurate sources no matter how uncharted the territory might be or become. The information was available in this instance USACE missed the queue.

My analysis of the Master Manual used by Omaha USACE could take up pages and pages. The point I am attempting to make here is this. The problem was completely avoidable had someone just used good common sense, something Chief Justice Oliver Wendell Holmes indicated everyone should use when making a decision.

Unfortunately, the Master Manual for the Missouri River Basin is problematic requiring revision with a civilian oversight board, assisting the USACE with flood control. There are alternatives to the current situation that should be strategize and considered, before proceeding with the current water release plan.

Very truly yours,

A handwritten signature in black ink, appearing to be 'Bart Willoughby', with a stylized, sweeping flourish extending to the right.

Bart Willoughby

Attachment: Letter to Senator Mike Johanns with Exhibits

CC: Honorable Senator Mike Johanns & Honorable Senator Tom Harkin

BART WILLOUGHBY

June 5, 2011

Express Mail and Facsimile at (402) 476.0605

The Honorable Mike Johanns  
United States Senator for Nebraska  
287 Federal Building, 100 Centennial Mall North  
Lincoln, NE 68508

**Re: Missouri River Flooding Avoidable**

Dear Senator Johanns:

We live in the Age of Information where, real time data is available that provides information in making informed decisions in avoiding crisis. The current flooding along the Missouri River in the tri-states of Nebraska, Iowa and South Dakota was avoidable for reasons that I will explain.

The Army Corp of Engineers ("USACE") under the Pick-Sloan Plan and Flood Control Act of 1944 charges USACE with flood control. The Omaha District, of USACE is the jurisdictional agency charged with flood control along the Missouri River. Jody Farhat, Chief of Missouri River Basin water management under the USACE in an interview with the Associated Press on June 3, 2011, stated, *"the agency made no mistakes and has managed releases in accordance with its manual"*.

The Missouri River hydrologic source is the Centennial Mountains located in the Western States of Idaho and Montana. From the Centennial Mountains, there exists, 15 dams that restrict water flow on the Missouri River beginning with Toston Dam and ending with Gavin's Point Dam in South Dakota. Ten dams are exclusively located in the State of Montana. Four of Montana dams have reservoirs for water storage (Canyon Ferry, Hauser, Holter & Fort Peck) the remaining seven is hydroelectric generation plants.

Fort Peck dam in Montana is storage and flood control. The remaining dams outside Montana, Garrison in North Dakota are storage. Oahe Dam in South Dakota is storage and flood control and Big Bend, Fort Randall and Gavin's Point are storage only. There exist at all sites along the Missouri River and dam storage areas, gauges that indicate water flow (i.e. Sioux City gauge is listed as 06486000 Missouri River at Sioux City, IA) with data collected and maintained by US Geological Survey.

As of early March 2011, data collected by the National Water and Climate Center with 90 measuring sites in Idaho, Montana and Wyoming indicated a 20-year record of snow pack located in the Centennial Mountains the measuring point of the Missouri River (EX-A). As of April 14, 2011, the Missoulian News Paper in Montana reported and quoted Ray Nickless a hydrologist with the National Weather Service in Missoula Montana as saying *"We've got a lot of snow, and with that snow comes the potential for flooding"*. Additionally, Nickless indicated *"We have high flood potential all across western Montana. With the abundant snow pack we've got, I don't know that we can avoid seeing some type of flooding"* (EX-B).

June 5, 2011

The Missouri River Region Daily Bulletin produced by the USACE indicates only information from Fort Peck, Garrison, Oahe, Big Bend, Fort Randall and Gavin's Point dams. The data includes Selected Tributary Reservoirs of Canyon Ferry, Harry Truman and Bagnell and then selected River Gages (EX-C). However, the Bulletin does not indicate all fifteen dams located on the Missouri River.

Here is the crux of the problem. The gage system while an effective tool as a measuring device for volumes of water that already exist at the gage locations is not a predictive model in periods of record snow pack in the mountains. Nor are the gages capable, of measuring snowmelt rates controlled by climate and temperature. The suggestion made by USACE in Omaha, that USACE followed manual procedures, indicates the manual maybe fundamentally flawed based upon the exclusive use of gage information.

Alternatively, USACE personnel in Omaha charged with determination of flood control ignored key data available in early March-April 2011. The 20-year record of snow pack data by National Water & Climate Center, Idaho, Montana, & Wyoming Dept. of Water Resources on available snow pack information and National Weather Service hydrology information that has led to the current flooding crisis in South Sioux City, Sioux City and North Sioux City. The release of water could have taken place in early March given the information available then that would have avoided the current crisis. The suggestion by Eric Stasch, operations manager at Oahe dam that *"just a massive rain that fell in the exact wrong place at the wrong time"* as the sole source for current flooding, is not supported by the data and does not take in account the record snow melt along the Missouri River dam system.

As a coastal analyst, I rely upon multiple data sets (i.e. tide charts, data buoy info, climate data and long range satellite ocean data) before making a decision that an event is threatening the coast, lives or property. My family, relatives and generations of families I grew up with live in South Sioux City, Dakota City and Jackson, Nebraska I am urging everyone, to keep track of expenses related to this flooding crisis and file claims with USACE. I objectively believe, based upon multiple data sources, the flooding was completely avoidable had USACE in Omaha acted sooner.

Your office and Senator Ben Nelson including, senators from Iowa and South Dakota should investigate this matter fully and review the flood control procedures utilized by USACE. There is a possibility using all fifteen dams in tandem with each other. Controlling the release of water, where the volume of water released at the end-point of Gavin's Point, could be less and avoiding the current crisis and upstream flooding.

Very truly yours,

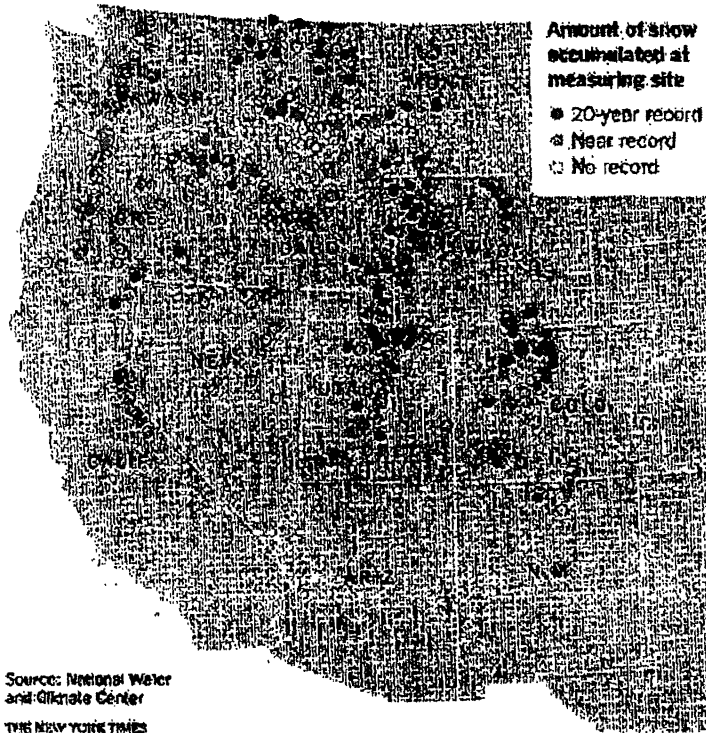


Bart Willoughby

Enclosure: Exhibits A through C.

## Record Snowpack

More than 90 measuring sites in the West have record snowpack totals on the ground so far this year.



EX-A

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 11:38 AM  
**To:** Anderson, G Witt NWD; [REDACTED]  
[REDACTED]  
[REDACTED] Love, Raymond E MAJ NWD; [REDACTED]  
[REDACTED] Tipton, Robert  
A Col NWD; [REDACTED]  
**Cc:** Blechinger, Erik T NWO; Farhat, Jody S NWD02  
**Subject:** FW: MR Mainstem timeline (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

NWD CMT,

Great summary and timeline from the CG on how we got to where we are in terms of weather and Water Management Operations along the Missouri. In the course of 20 days (10-31 May) Eastern Montana received 11-17.5 inches of rain. One person commented on the internet how it rained an inch an hour in her location. Jody Farhat, MRWM PgM, was already releasing water from our reservoirs (49-57.5Kcfs) in preparation of snow melt during a record snowpack in the mountains. The plan is now to step up releases to 150Kcfs. What's not mentioned below are the drought conditions this whole area was under for several previous years.

[REDACTED]  
-----Original Message-----

**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 10, 2011 7:49 AM  
**To:** Temple, Bo M MG HQ02; Grisoli, William T MG HQ02; [REDACTED]  
[REDACTED]  
**Cc:** Anderson, G Witt NWD; [REDACTED] Tipton, Robert A Col NWD; [REDACTED]  
Farhat, Jody S NWD02; Blechinger, Erik T NWO; Ruch, Robert J COL NWO; Hofmann, Anthony J COL  
NWK  
**Subject:** MR Mainstem timeline

Sir:

Just as a quick reference, here's a brief outline of the MR mainstem reservoir system timeline. We are developing a more detailed version as we anticipate lots of scrutiny.  
VR/John

Jan 28 - minimum system storage = 56.8 MAF

April 1 forecast - Garrison summer releases = 29 kcfs; Gavins Point summer & fall releases = 39-45 kcfs; mountain snowpack 116% and 112% of normal; canceled May spring pulse

April 25 - Jody Farhat email to USFWS - no bird operations this year due to high water

May 1 forecast - Garrison summer releases = 49 kcfs; Gavins Point summer releases = 57.5 kcfs; mountain snowpack = 141% and 136% of normal peak

May 10-11 - 2.5 to 3.5 inches rain in eastern Montana

May 20 - Press release Garrison releases to increase to 60 kcfs

May 20-22 - 5-8 inches rain in eastern Montana, western South Dakota, and northern Wyoming

May 23 - Press release announcing Garrison releases to 75 kcfs, Gavins Point to 75 kcfs

May 24 - CODEL call and press release announcing Garrison releases to 85 kcfs, Gavins Point to 85 kcfs

May 25 - 1.5 to 2 inches rain in eastern Montana

May 26 CODEL call announces releases 110 to 120 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 27 QPF shows additional heavy rain forecast

May 28 CODEL call announces releases to 150 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 30-31 - 2-4 inches of rain in Montana

May 30 First MRJIC Stakeholder call

Classification: UNCLASSIFIED  
Caveats: NONE



**NWO**

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 11:19 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** Farmer, Monique L NWO  
**Subject:** FW: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

Per our discussion this morning, here is what [REDACTED] sent me. I'm glad you flagged for me that perhaps we need to double check. Am still just trying to come up with a good analogy, if possible, for people to better relate to the significant amounts of water we are talking about.

According to the numbers Roy ran for me, 44 MAF would cover Iowa in 14.66 inches of water.

10.5 MAF would cover Iowa in 3.5 inches of water.

I was just trying to draw a visual for something you could fill up, versus something you cover.

[REDACTED]  
-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 12:48 PM  
**To:** [REDACTED]  
**Subject:** RE: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

OK. How about 10.5 MAF is enough water to fill the Memorial (Cornhusker) Stadium about 5000 times. This stadium has a capacity of about 87,000 fans.

Since this the largest vessels (besides reservoirs) that I can think of in the area, I would perhaps use the State of Iowa analogy for the 44.5 MAF.

The Math

There is no good volume statistics for Memorial Stadium, but Cowboys Stadium which holds 100,000 fans has a volume of 104,000,000 cubic feet. 1 acre foot = 43560 cubic feet. Therefore Cowboy stadium has a capacity of 2,387 AF or could be filled 4,398 times with 10.5 MAF. Adjusting Memorial Stadium for less capacity than Cowboy Stadium gets me to approximately filling it 5000 times.

Others

The following analogy was used by USGS for the 1993 flood "The peak discharge in August 1993 was measured at 485 million gallons per minute or 1,080,000 cubic feet per second—a rate

sufficient to fill Busch Stadium about every 65 seconds." This puts Busch Stadium at about 70,200,000 cubic feet of volume. I am estimating the Cornhusker Stadium at 90,500,000 cubic of volume.

Hope this is helpful -

[REDACTED]  
[REDACTED]  
CENWD-PDD  
[REDACTED]  
[REDACTED] (fax)

-----Original Message-----

From: [REDACTED]  
Sent: Thursday, June 09, 2011 9:54 AM  
To: [REDACTED]  
Subject: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
So here's what I'm trying to do if possible -- to provide a visual that most people can understand of the size of a container that would hold 1 million acre feet of water.

The numbers I'm most interested in trying to convey, are 10.5 MAF (the amount of runoff that flowed into the system in the month of May -- the second highest 1 month amount on record)

Also, 44 MAF (the total amount of runoff projected from March through July) -- this is also a record, exceeding the 40 MAF in 1881, which was the baseline amount for which this system was designed.

Thanks!!! [REDACTED]

[REDACTED]  
[REDACTED] Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 11:11 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** MRJIC talking points (UNCLASSIFIED)  
**Attachments:** Master Manual TPs.docx; 2011 Release Schedule TPs.docx; flood comparison TPs.docx; Levee TPs.docx; damsafetytps.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Realized you may not be getting the final version of these .... sorry!

[REDACTED]

[REDACTED]

[REDACTED] Northwestern Division,  
Portland OR [REDACTED] (Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

## **UPDATED: Master Manual and General Reservoir Ops Talking Points:**

The Missouri River Mainstem Reservoir System, which includes 6 dams, is operated in accordance with the Master Manual. The Master Manual is a water control plan that helps guide how much water should be released, when, and for how long from the 6 reservoirs for the benefit of the entire Missouri River basin. The Master Manual hydrology (runoff volume, timing, shape of watersheds, etc) is based on over 100 years of historical runoff records (1898-2004).

The Corps revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were authorized and constructed.

The reservoir system is designed to capture spring and summer runoff to provide flood risk reduction, and then allows the Corps to manage releases throughout the year to accommodate the other 7 authorized purposes: navigation, irrigation, water supply, hydropower, fish and wildlife, recreation, and water quality.

Each year an annual operating plan is developed to make necessary adjustments to our reservoir operations based on current and projected annual conditions, such as: amount of water received the previous year, rainfall events, plains snow pack, and mountain snow pack. This annual plan is circulated every fall and public meetings are held through the Missouri River Basin to gain inputs from the public and Tribes.

The actual operation of the System is reviewed and, if required, adjusted on a daily basis depending on current and forecasted conditions.

### **Answers to frequently asked Master Manual Questions:**

Were releases held back earlier in the season to protect nesting least terns and piping plovers?

Answer: No operational decisions this year were driven by the needs of fish and wildlife or the Endangered Species Act – we have been operating solely for flood risk reduction. In fact, the Master Manual provides for a Spring Pulse to aid Endangered Species, which is an increase in flows during March and May, that we did not implement in 2011 because flows were already above normal and because the risk to potential flooding downstream of Gavins Point. Summer adjustments to operations to minimize flooding of protected tern and plover eggs and chicks did not take place this year due to high flow conditions.

Will this change the way the reservoir system is operated in future years?

Answer: The reservoir system has been operated in accordance with the Master Manual. However, 2011 will be a new data point in the history of the Missouri River Basin, both in terms of hydrology and flood plain impacts, so this event will certainly be studied in the future. The Corps will conduct an extensive review following the flooding this year to assess the operation, its effects, and learn where improvements or adjustments might be warranted. Whether or not future studies lead to changes in the operation of the reservoir system or land use policies remains to be seen.

**Prepared by: MRJIC, Updated 7 June 2011**

**Approved by: Erik Blechinger/Jody Farhat**

**2011 Release Schedule:**

Releases from the Missouri River dams last fall and throughout the winter of 2010 were above normal. All flood waters from 2010 were released in time for the 2011 runoff season. 2010 was the third highest water year on record in the Missouri River Basin.

On 28 January 2011, the full flood capacity of the Missouri River reservoir system was available for this year's runoff season (reservoir was at desired 56.8 Million Acre Feet). At that point, and all the way through the first of May, we had no reason to think we needed to increase releases beyond normal levels.

The current need for high releases is due to a perfect storm: 1) plains snow; 2) extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in one month (300% of normal in May); and 3) additional mountain snowpack accumulation to record levels in May and a delayed melt.

The May 2011 runoff into the Missouri River Basin above Sioux City was 10.5 MAF – our normal May runoff based on historical records is only 3.3 MAF. To put this in some perspective, 10.5 MAF would be enough water to cover the entire state of Iowa in over 3 inches of water. This was the second highest single month of runoff since 1898. The only higher was in 1952 with 13.2 MAF in April.

Regulation of the reservoir system is in accordance with the Master Manual and it is not based on a worse-case scenario; it is managed for a reasonable range of potential runoff.

**Answers to frequently asked 2011 Release Schedule Questions:**

Why didn't you release more water earlier in the year?

Answer: At no time prior to the repeated rounds of heavy rain in the Upper Basin in May, resulting in record single-month inflows into our System, did we have reason to expect record releases. Immediately after this rainfall event we began incrementally stepping up our releases in a controlled manner, while still allowing people downstream to prepare for a record runoff water year.

Didn't you say you factor the weather forecast into your release schedule?

Answer: We do – every month we update our regulation forecast to reflect current and projected conditions. Unfortunately, no one had the crystal ball that predicted the record rains in a two week period in Montana.

How long will you continue at the projected 150,000 cfs release rate?

Answer: These peak releases will likely extend well into August. We need to maintain these high releases until the reservoirs are back down to a manageable level. The other guiding principle is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies both to our mainstem dams and all the levees downstream.

**Prepared by: MRJIC, 7 June 2011**

**Approved by: Erik Blechinger/Jody Farhat**

**Flood Comparison Talking Points:**

All floods are different and we caution people against trying to make comparisons between this flood and floods from past years. This is the Flood of 2011.

The manner and location in which water enters the basin are significant elements that determine the characteristics of a flood event. Each flooding event is unique because of a variety of factors: amount of rainfall, timing of the rainfall, location of the rainfall, amount of snow in the plains and in the mountains, timing of the snow melt, etc.

If we try and compare this flood to one from the past, our concern is that people will go out to a tree, take a look at the mark someone made from the Flood of 1997 and assume that is how high the water will be – that would be a mistake.

Our focus right now is on the Flood of 2011 and ensuring we provide the most accurate up to date information about this flooding event so people along the Missouri River basin can make plans to evacuate and protect their property as appropriate.

**Prepared by: MRJIC, 7 June 2011**

**Approved by: Erik Blechinger**

## **Levee Talking Points:**

Federal levees in the Missouri River Basin have been constructed by the Corps, but are then operated and maintained by a non-federal, local sponsor.

We have a comprehensive and aggressive federal levee safety program. It includes an annual inspection for adequate maintenance and a more rigorous structural review every five years.

During times of expected high water and flooding, we encourage levee sponsors to vigilantly monitor their levees and notify the Corps immediately of any concerns.

As soon as an issue is identified on one of the federal levees, the Corps immediately gets a team on site with the local sponsor to assess the situation.

## **Answers to frequently asked Levee Questions:**

What's the difference between a levee breach and a levee being overtopped?

**Answer:** A levee is overtopped when water levels behind the levee exceed the height of the levee and water begins flowing over the barrier into the protected area. If a levee is overtopped, it is not considered a failure of the levee or a breach, but it can lead to one because levees are not designed to have water on both sides.

**Answer:** A levee is breached, or fails, when the structural integrity of the levee is damaged and water begins flowing under or through the levee. As water seeps under or through it can cause the levee to collapse in some areas, allowing water to flow through the gap. In this situation the depth of flooding may reach the projections illustrated on the inundation maps.

What are some reasons why a levee might be breached?

**Answer:** There are a variety of reasons that may lead to a levee breach, including rodent holes, seepage, erosion, relief well failures, slope stability issues, and cutting away at the levee

What can you do once a levee has been breached?

**Answer:** Once a levee has been breached response crews will assess the damage and determine if a repair to that levee is possible, or if it makes more sense to build a temporary levee in another location to protect critical infrastructure as necessary.

What can you do once a levee has been overtopped?

**Answer:** There is nothing you can do to repair the levee once water has started flowing over the top.

What is a sand boil?

**Answer:** A sand boil develops when water begins seeping underneath the levee and begins bubbling, or boiling up, on the other side. Sand boils can be contained with sand bagging around the boil (ring berm). If the sand boil is observed moving material with the water (otherwise known as piping) this is evidence of potential damage to the levee.

What is freeboard?

**Answer:** Freeboard is the difference between the projected height of the water and the height of the levee.

## **Dam Safety Talking Points**

We have a vigilant dam safety program. Our dams are routinely inspected and maintained on rigid schedules and are well-prepared to handle the floodwaters. This is what they were designed to do. Our dams are structurally sound and are not experiencing any signs that indicate impending failure.

Our dams are equipped with instruments that allow us to identify potential seismic or seepage issues if and when they develop. When our reservoir water levels are high, we become even more proactive and increase our surveillance of these instruments.

Our dams are routinely inspected on an annual basis and undergo an even more rigorous evaluation every five years. Our dams are evaluated for safety in accordance with the Federal Guidelines for Dam Safety originally issued in 1979 and revised in 2005.

This is uncharted territory for releases; however, our reservoirs have been at, or very near these levels before.

There is no risk of our dams being overtopped during this event. However, the water is in our exclusive flood control zone and near the top of our spillway gates. If the reservoir rises to the top of the spillway gates, we have to open the spillway gates and release water beneath the gates. The spillway gates are considerably lower than the top of the dam and are not designed to have water flowing over the top of them.

### **Answers to frequently asked Dam Safety Questions:**

I heard that earthen dams are likely to fail due to liquefaction?

**Answer:** There is very little potential for liquefaction to occur at our dams. Our dams underwent rigorous studies in the 1970s and in 2005 to reflect state of the practice changes in seismic evaluation. Both studies concluded our dams are not a risk for liquefaction for the seismicity of their region.

What is involved with your dam safety program?

**Answer:** The Omaha District dam safety monitoring process consists of the following:

- Daily and monthly inspections by project personnel.
- Instrumentation data collection and interpretation.
- Annual Inspections performed by project and district dam safety personnel.
- Periodic Inspections performed every five years. Periodic Inspections include a thorough review of all components of the project and are attended by project personnel, technical staff from various disciplines within the Omaha District, Division technical experts, and government officials from outside the Corps of Engineers.
- Special Inspections are also performed for high water conditions, seismic events, and other unusual conditions.
- The Omaha District assesses each dam's safety with regard to other issues such as operational modifications to the project and adequacy of hydraulic steel structures.

**Prepared by: MRJIC, 10 June 2011**

**Approved by: Erik Blechinger, Jody Farhat and [REDACTED]**



From:  
Sent:  
To:

Friday, June 10, 2011 10:56 AM

[REDACTED]

Subject: Estimating Levee Breach Size and Development Times (UNCLASSIFIED)  
Attachments: Levee Breach Data for\_H&H\_Modeling.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

Hi,

The Corps is currently undertaking a major task to evaluate all of its levees, in order to quantify their associated Risk. A major part of this process is to perform a hydraulic analyses of potential Levee overtopping and breaching. To date, there are no reasonable equations or detailed methodologies to assist in the estimation of levee breach sizes and development times. Most of the work in embankment breaching has been done for Dam safety, and is not appropriate for use with levees.

You have been emailed, because the Corps, and anyone else wanting to perform a levee analysis needs your help. We need to put together a National Database of Historic levee breach information that is geared towards the data/information needed to create a good set of regression equations (short term need), as well as a future process models that can depict the levee breaching process for over topping, pippin/seepage, etc... I know that there are other people collecting information on levees, and I have contacted several of them, but they unfortunately they have not collected the information that I feel is important in developing a good set of regression equations and process models for hydraulic modeling.

I have enclosed an Excel spreadsheet that has column headings that I think are appropriate for such an undertaking. The problem is that I need the help of each of you to fill this out with any historic levee breach information you can find from your geographic area. Yes, I do realize that this will take time, effort, and possibly some funding on your part.

If you feel that there are levee breaches that have occurred in your region that would be good to add to this database, but you need some funding to get it done, we will provide you with some funding (we are talking in the 5 to 10K range here). If you can provide some of this information for no funding, you will be rewarded back with a set of regression equations in the short term, and hopefully better process models in the long term, that you can use for evaluating levees in your area.

When filling out the spreadsheet, if you do not have all of the data listed, enter what you do have for each historic breach. However, the final breach width is absolutely critical, and an estimate of the time it took for the breach to develop would be extremely helpful. The spreadsheet has two Tabs. The first tab labeled "Levee Breach Data" is to be used to populate your historic levee breach data. The second Tab is a description of all the data fields/columns. If there is information that is missing from this spreadsheet, that you think is relevant, add it to the last column called "Applicable Notes"

I know this may seem like a task that you do not have the time for. But given the miles of levees the Corps is directly responsible for (over 2000 separate levees, stretching over 15,000 miles), we absolutely need to have this information. My hope is that, in addition to using this data to develop regression equations and process models, the data will be added to the National Levee Database so that anyone can call it up and use it.

Thank you for any help whatsoever that you can provide. As I have sent this email to everyone I could think of, there are obviously multiple people from the same district/division office. Please coordinate with others in your office, as to prevent any duplication of effort.

[REDACTED]  
[REDACTED]  
Hydrologic Engineering Center. USACE  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Name of River

Name of Levee System

Approximate Location

Date of Breach

Time of Breach  
(ex. 1730)

Federal/Non-Federal

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Levee Construction Material	Average Levee Height (ft)	Average Depth of Water at Breach Initiation (ft)	Width of Breach (ft)	Breach Depth (ft)
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Breach Development Time (hrs)	Volume of Water into Protected Area (Acre- ft)	Volume of Water to completely fill Interior Area (Acre-ft)	Duration of Time Levee was Wet (hrs)	Flood Fighting to Stop Breach Progression? (Y/N)
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Failure Mode That Caused Breach	Major References of Gathered Material
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#### Applicable Notes

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<b>Name of River</b>	Name of the river that the levee is located on
<b>Name of Levee System</b>	Name of the Levee for which breach occurred
<b>Approximate Location</b>	Name of city, town, or area within protected area
<b>Date of Breach</b>	Date when breach began to occur
<b>Time of Breach (ex. 1730)</b>	Time in military time at which breach began
<b>Federal/Non-Federal</b>	Is the Levee Federally owned? Or is it a non-Federal?
<b>Levee Construction Material</b>	Type of material that was used to construct levee
<b>Average Levee Height (ft)</b>	Average height of the levee from toe elevation to crest
<b>Average Depth of Water at Breach Initiation (ft)</b>	This is the depth of water at the levee breach initiation
<b>Width of Breach (ft)</b>	Average breach width in feet after it fully developed
<b>Breach Depth (ft)</b>	Depth of the breach in reference to the top of the levee
<b>Breach Development Time (hrs)</b>	Time in hours from the initiation of the levee breach to full development
<b>Volume of Water into Protected Area (Acre-ft)</b>	Volume of water that entered the protected area
<b>Volume of Water to completely fill Interior Area (Acre-ft)</b>	What volume of water would it take to completely fill the interior area?
<b>Duration of Time Levee was Wet (hrs)</b>	How long was the levee wet (water above the crest)?
<b>Flood Fighting to Stop Breach Progression? (Y/N)</b>	Was flood fighting used to stop the breach progression?
<b>Failure Mode That Caused Breach</b>	What was failure caused by Overtopping, Embankment failure, etc.
<b>Major References of Gathered Material</b>	References that were used to gather this information
<b>Applicable Notes</b>	Any important comments or notes about the breach



in  
ed  
d area

to occur  
-federal levee  
the levee (ex. Sand, silty clay, mixture of silt and sand, uncompacted silty clay, etc...)  
ion to top of levee - This should only be estimated from area of levee breach  
h location at the time of the breach initiation. Depth should be measure in reference to levee height. (€  
veloped - i.e. final breach width.  
of the levee. (Ex. 10 ft high levee, breach scours to 2.0 feet below levee to, Breach deth is 12.0 ft)  
e breach, to when the breach stopped actively widening.  
l area through the breach.  
pletely fill the protected area (this volume/elevation may be top of levee at the lowest downstream poi  
the toe of the levee) prior to the initiation of the breach  
rom progressing to a wider length?  
ment stability, embankment erosion, or a structure failure (such as a failure at a gate or culvert structur  
ormation  
e failure or the levee itself.

ex. If we have a levee that has an average height of 10 ft, and the water was 2.0 feet from the top of levee

nt)

e)

ee at breach initiation, then average depth of water is 8.0 ft. If watre level were 1.0 feet above levee at

breach initiation, then depth would be 11.0 ft.

[REDACTED]

---

**From:** Anderson, G Witt NWD  
**Sent:** Friday, June 10, 2011 10:30 AM  
**To:** Farmer, Monique L NWO; McMahon, John R BG NWD  
**Cc:** Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Subject:** RE: Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Very good. In last sentence of third paragraph - suggest revising "...consider variables like runoff volume, timing, and the shape of watersheds,..." to "...consider variables like volume, timing, and the shape of snow and rainfall runoff,...".

Witt

-----Original Message-----

**From:** Farmer, Monique L NWO  
**Sent:** Thursday, June 09, 2011 5:55 PM  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Subject:** Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir:

Per your request, I have attached a draft version of the Op-Ed piece on the Master Manual for circulation in newspapers this weekend--aiming for Sunday circulation in the major dailies throughout the region.

Please edit and return to me at your convenience and I will distribute.

Very respectfully,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

**From:** Gross, Sarah LRC  
**Sent:** Friday, June 10, 2011 10:26 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** 'normal' dam release questions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, are our dams constantly releasing water during seasons of normal precipitation? Do you have the numbers for normal releases at each of the dams?

Sarah D. Gross  
Public Affairs Specialist  
U.S. Army Corps of Engineers, Chicago District  
111 N. Canal St., Chicago IL, 60606  
[Sarah.D.Gross@usace.army.mil](mailto:Sarah.D.Gross@usace.army.mil)  
Office: 312-846-5334  
Mobile: 312-659-4354  
<http://facebook.com/usacechicago>  
<http://www.flickr.com/photos/usacechicago>  
Great Lakes and Mississippi River Interbasin Study (GLMRIS):  
<http://glmr.is.anl.gov>  
<http://facebook.com/glmris>

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED] NWD  
**Sent:** Friday, June 10, 2011 9:53 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** Noon Conference call with HQ

Jody,

I wanted to confirm that you are available for the noon conference call with HQ (daily).

Based on their guidance yesterday, what I want to have a two pronged approach to the call. I would like to basically start off by passing it to you to give an update on current releases, any changes in the last twenty four hours, and what you see happening over the next 48 hours.

The goal, is to provide them with enough information that a call on Saturday and Sunday is not needed. Monday through Thursdays, you would just talk out 24 hours...

After you talk, I will then give more of a overall summary of the Situation and then turn it over to HQ for questions.

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]

[REDACTED]@usace.army.mil

[REDACTED]e@usace.army.smil.mil

Emergency Satellite Phone: [REDACTED] Emergency Cell: [REDACTED]

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[REDACTED]

---

**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 10, 2011 9:49 AM  
**To:** Temple, Bo M MG HQ02; Grisoli, William T MG HQ02; [REDACTED]  
**Cc:** Anderson, G Witt NWD; [REDACTED] Tipton, Robert A Col NWD; [REDACTED]  
[REDACTED] Farhat, Jody S NWD02; Blechinger, Erik T NWO; Ruch, Robert J COL NWO;  
Hofmann, Anthony J COL NWK  
**Subject:** MR Mainstem timeline

Sir:

Just as a quick reference, here's a brief outline of the MR mainstem reservoir system timeline. We are developing a more detailed version as we anticipate lots of scrutiny.  
VR/John

Jan 28 - minimum system storage = 56.8 MAF

April 1 forecast - Garrison summer releases = 29 kcfs; Gavins Point summer & fall releases = 39-45 kcfs; mountain snowpack 116% and 112% of normal; canceled May spring pulse

April 25 - Jody Farhat email to USFWS - no bird operations this year due to high water

May 1 forecast - Garrison summer releases = 49 kcfs; Gavins Point summer releases = 57.5 kcfs; mountain snowpack = 141% and 136% of normal peak

May 10-11 - 2.5 to 3.5 inches rain in eastern Montana

May 20 - Press release Garrison releases to increase to 60 kcfs

May 20-22 - 5-8 inches rain in eastern Montana, western South Dakota, and northern Wyoming

May 23 - Press release announcing Garrison releases to 75 kcfs, Gavins Point to 75 kcfs

May 24 - CODEL call and press release announcing Garrison releases to 85 kcfs, Gavins Point to 85 kcfs

May 25 - 1.5 to 2 inches rain in eastern Montana

May 26 CODEL call announces releases 110 to 120 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 27 QPF shows additional heavy rain forecast

May 28 CODEL call announces releases to 150 kcfs from lower 5 reservoirs, 50 kcfs from Fort Peck

May 30-31 - 2-4 inches of rain in Montana

May 30 First MRJIC Stakeholder call



**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 9:27 AM  
**To:** DLL-CENWD-PDR; [REDACTED]  
**Subject:** Fri Rain Report

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
DATE=Jun 10, 2011 - 14:02:16  
0

>>>>>>> PAGESIZE 60  
>>>>>>> DUMPPP24 \* \*

0\*\*NOTE\*\* DATA FOR THE PERIOD 06/10/2011-12Z THROUGH 06/10/2011-12Z WILL BE PROCESSED.  
QUANTITY DESC (0.01)  
OBONLY  
END

0PP24 DATA FOR 06/10/11-12Z THRU 06/10/11-12Z

0 - = MISSING VALUE OR SUM E = ESTIMATED VALUE P = PARTIAL SUM

STATION	PERIOD
ID	SUM
DSM	4.53 4.54
TTNM7	3.61 3.62
DMX	3.56E 3.57
JMEM7	3.33 3.34
ROKI4	3.27 3.28
RDOI4	3.24E 3.25
ICT	2.82 2.83
WTRI4	2.71 2.72
AMW	2.69 2.70
IRK	2.58 2.59
GTHI4	2.46 2.47
HOSI4	2.45 2.46
WLNI4	2.41E 2.42
PANI4	2.39E 2.40
ORCI4	2.28 2.29
SPOI4	2.28 2.29
ALTI4	2.27E 2.28
HRTN1	2.26 2.27
PATM7	2.21E 2.22
PTTM7	2.20 2.21
SPWI4	2.18E 2.19
BAYI4	2.17E 2.18
EVYI4	2.12 2.13
RYLI4	2.12E 2.13
SPW	2.12 2.13
WALI4	2.11E 2.12
DIKI4	2.09E 2.10
IAB	2.08 2.09
AUDI4	2.06 2.07
CHRI4	2.05 2.06
SIXI4	2.05E 2.06
PULI4	2.04E 2.05
HTYI4	2.03E 2.04
GRCM7	2.00 2.01

MIW	MARSHALLTOWN AIRPORT	IA	2.00	2.01
SNBI4	SANBORN	IA	1.98	1.99
PGHI4	PRIMGHAR	IA	1.97E	1.98
ADAI4	ADAIR 2NNW	IA	1.96E	1.97
CMBI4	COLUMBIA	IA	1.90E	1.90
HARI4	HARTLEY	IA	1.89E	1.89
LORI4	LORIMOR	IA	1.75E	1.75
BLON1	BLOOMFIELD	NE	1.74	1.75
HSII4	HASTINGS 4NE	IA	1.74E	1.75
3SE	SPENCER 1N	IA	1.74E	1.75
CHTI4	CHARITON 5SSE	IA	1.73E	1.74
GILW4	GILLETTE 4SE	WY	1.71E	1.72
GILI4	GILLETTE GROVE	IA	1.71E	1.72
LSSI4	SPENCER, LTL SIOUX R	IA	1.68	1.68

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STATION				PERIOD
ID	DESCRIPTION	STATE	06/10	SUM
GRYI4	GRAY	IA	1.67E	1.67
MIFI4	MILFORD, LTL SIOUX R	IA	1.67E	1.67
RHVI4	RUTHVIN	IA	1.66E	1.66
MNKI4	BRUNSVILLE	IA	1.64	1.64
OTM	OTTUMWA	IA	1.61	1.62
MFRI4	MILFORD 4NW	IA	1.60E	1.61
CLEN1	COLERIDGE	NE	1.59E	1.60
EMMI4	EMMETSBURG	IA	1.57E	1.58
GRNI4	GREENFIELD	IA	1.56E	1.56
IRWI4	IRWIN 3ESE	IA	1.54E	1.54
CINI4	CARROLL	IA	1.52	1.52
COOI4	COON RAPIDS	IA	1.50	1.50
EXII4	EXIRA	IA	1.50E	1.50
UNVM7	UNIONVILLE	MO	1.48E	1.49
HRLI4	HARLAN 1N	IA	1.46	1.47
BKCI4	AKRON 11E	IA	1.45E	1.46
MLNM7	MILAN	MO	1.43E	1.43
GCC	GILLETTE	WY	1.42	1.42
BLDW4	BALD MOUNTAIN	WY	1.40	1.40
SPKM7	SPICKARD 7W	MO	1.39	1.39
NOVM7	NOVINGER	MO	1.38E	1.38
LOGI4	LOGAN	IA	1.37	1.38
LGNI4	LOGAN #2, BOYER R	IA	1.37E	1.38
MCW	MASON CITY AIRPORT	IA	1.37	1.38
CID	CEDAR RAPIDS AIRPORT	IA	1.36	1.37
NVZM7	NOVINGER, CHARITON R	MO	1.35E	1.36
BRLM8	BARKER LAKES	MT	1.30	1.30
EST	ESTHERVILLE	IA	1.27	1.27
SXRI4	SIOUX RAPIDS 4E	IA	1.27E	1.27
ESTI4	ESTHERVILLE 2N	IA	1.25	1.25
LEBI4	LEBANON 4SE	IA	1.25E	1.25
ERLI4	EARLING	IA	1.24E	1.25
WBNI4	WOODBINE	IA	1.24E	1.25
GETW4	GILLETTE 10N	WY	1.23E	1.24
GWDI4	GRISWOLD	IA	1.23E	1.24
DPYM8	DUPUYER CREEK	MT	1.20	1.21
GLNI4	GLENWOOD	IA	1.20	1.21

STJN1	ST JAMES	NE	1.20E	1.21
GAZM7	GALLATIN, GRAND R	MO	1.18E	1.18
LEMI4	LE MARS	IA	1.16E	1.16
RADI4	RATHBUN DAM	IA	1.16	1.16
KCEW4	KAYCEE	WY	1.14	1.14
KRKM7	KIRKSVILLE (KIRX)	MO	1.14	1.14
DERI4	DERBY	IA	1.12E	1.13
SHEI4	SHELBY	IA	1.12E	1.13
SHLI4	SHELDON 1N, FLOYD R	IA	1.12E	1.13
SHLW4	SHELL 1NE	WY	1.12	1.13
GLEI4	GLENWOOD 3SW	IA	1.11E	1.12
SHDI4	SHELDON	IA	1.11	1.12
WRL	WORLAND AIRPORT	WY	1.11	1.12
BSDW4	BONE SPRINGS DIVIDE	WY	1.10	1.11
DAZM8	DAISY PEAK	MT	1.10	1.11
IOW	IOWA CITY AIRPORT	IA	1.10	1.11

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
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ID	DESCRIPTION	STATE	06/10	PERIOD SUM
YTNS2	YANKTON 2E	SD	1.10	1.11
AVOI4	AVOCA	IA	1.09E	1.10
YANS2	YANKTON, MISSOURI R	SD	1.07E	1.08
APKI4	ARNOLDS PARK	IA	1.06E	1.06
OFF	OFFUTT FIELD	NE	1.06	1.06
WORW4	WORLAND	WY	1.06E	1.06
CNTI4	CENTERVILLE	IA	1.05E	1.05
FOSI4	FOSTORIA	IA	1.05E	1.05
LWMM8	LEWISTOWN 11ESE	MT	1.05	1.05
ATLM7	ATLANTA	MO	1.04E	1.04
REMI4	REMSEN	IA	1.04E	1.04
RMSI4	REMSEN #2	IA	1.04	1.04
VILI4	VILLISCA	IA	1.04E	1.04
AAO	WICHITA	KS	1.04	1.04
SLVM8	SILVER LAKE	MT	1.03E	1.03
WHRW4	WORLAND, BIGHORN R	WY	1.03E	1.03
SHRM5	SHERBURN 3WSW	MN	1.02E	1.02
MRLI4	MERRILL, FLOYD R	IA	1.01E	1.01
CRYM8	CRYSTAL LAKE	MT	1.00	1.00
FOD	FT DODGE	IA	1.00E	1.00
IMOI4	IMOGENE 3N	IA	1.00E	1.00
MYCI4	MAY CITY	IA	1.00E	1.00
MAYI4	MAY CITY	IA	1.00E	1.00
PTNM8	PETERSON MEADOWS	MT	1.00	1.00
FCKN1	FT CROOK, PAPILLION	NE	0.99E	1.00
MVLI4	MISSOURI VALLEY 1NNE	IA	0.99E	1.00
MOLI4	MOULTON, CHARITON R	IA	0.99E	1.00
LDOM7	LAREDO, MEDICINE CR	MO	0.97	0.98
LYMI4	LYMAN	IA	0.95E	0.95
CFTN1	CROFTON 8N	NE	0.94E	0.94
GPDN1	GAVINS PT DAM	NE	0.94E	0.94
GLTW4	GILLETTE	WY	0.94E	0.94
FCLN1	FORT CALHOUN 4W	NE	0.93	0.94
MONI4	MONDAMIN	IA	0.93E	0.94
CHMN1	CHAMBERS	NE	0.92	0.93

BRWM7	BROWNING, LOCUST CR	MO	0.91E	0.92
PRTM7	PRINCETON	MO	0.91E	0.92
STBM8	STEAMBOAT RAWS	MT	0.91	0.92
BSCM8	BASIN CREEK	MT	0.90	0.90
BGEW4	BIG GOOSE	WY	0.90	0.90
ECHW4	ECHETA 2NW	WY	0.90E	0.90
FCTK1	FACT 3W	KS	0.90	0.90
GLLM7	GALLATIN 1W	MO	0.90	0.90
NEOI4	NEOLA	IA	0.90E	0.90
SCRW4	SHELL CREEK	WY	0.90	0.90
SPRM8	SPUR PARK	MT	0.90	0.90
BELN1	BELLVUE	NE	0.89E	0.89
FTHS2	FAITH 14NW, MOREAU R	SD	0.89	0.89
DEOI4	MISSOURI VALLEY 10W	IA	0.89	0.89
CKPI4	CHEROKEE	IA	0.88E	0.88
CRFN1	CROFTON	NE	0.88E	0.88
OCHI4	OCHEYEDAN	IA	0.87	0.88
PMPM8	POMPEYS PILLAR 18N	MT	0.87E	0.88

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BLAN1	BLAIR 2E, MISSOURI R	NE	0.86E	0.87
MSNI4	MASSENA	IA	0.86	0.87
PTRI4	PETERSON, LTL SIOUX R	IA	0.86	0.87
PLTN1	PLATTSMOUTH 1E	NE	0.86E	0.87
SXXW4	SUSSEX, POWDER R	WY	0.86	0.87
BLMI4	BLOOMFIELD 1WNW	IA	0.85	0.86
CSNI4	CARSON 3NNE	IA	0.84E	0.84
CRTI4	CRESTON 2SW	IA	0.84E	0.84
LWSM8	LEWISTOWN 10S	MT	0.84E	0.84
LGSW4	LITTLE GOOSE SNOTEL	WY	0.84E	0.84
UNDI4	UNDERWOOD	IA	0.83	0.83
HNKI4	HANCOCK, WEST NISH	IA	0.82E	0.82
LCRM7	LUCERNE, MEDICINE CR	MO	0.81E	0.81
MALI4	MALVERN	IA	0.81E	0.81
MRNS2	MAURINE 12SW	SD	0.81	0.81
OAKI4	OAKLAND	IA	0.81	0.81
PTMN1	PLATTSMOUTH 1E	NE	0.81E	0.81
PWDW4	POWDER RIVER PASS	WY	0.80	0.81
RONW4	RAIRDEN 2WSW	WY	0.80E	0.81
WILW4	WILLOW CREEK	WY	0.80	0.81
LKFM5	LAKEFIELD	MN	0.79	0.80
SPRI4	SPIRIT LAKE	IA	0.79E	0.80
SPNN1	SPRINGFIELD 7E	NE	0.79	0.80
HERM5	HERON LAKE	MN	0.78	0.78
PCFI4	PACIFIC JUNCTION	IA	0.77E	0.77
UTIS2	UTICA	SD	0.77E	0.77
AFOW4	AFTON EXP FARM	WY	0.76E	0.76
BYDW4	BOYD RIDGE RAWS	WY	0.76E	0.76
JCKM5	JACKSON	MN	0.76E	0.76
GIBM8	GIBBONS PASS	MT	0.75E	0.75
HRSI4	HARRIS	IA	0.75E	0.75
JDHM8	JUDITH GAP 13E	MT	0.75E	0.75
LSXI4	LITTLE SIOUX 2NW	IA	0.75	0.75

WRNM5	WORTHINGTON 2NNE	MN	0.75	0.75
BYRI4	BOYER 4SE	IA	0.74E	0.75
BAGM8	DUPUYER 22SW	MT	0.73E	0.74
USTS2	USTA 8WNW	SD	0.73E	0.74
ATAM7	ATLANTA RAWS	MO	0.72E	0.73
LNNI4	LINN GROVE	IA	0.72E	0.73
LSHI4	LOESS HILLS RAWS	IA	0.72E	0.73
PSGI4	PISGAH, SOLDIER R	IA	0.72E	0.73
SBLI4	SIBLEY	IA	0.72E	0.73
WITM8	WINNETT 12SW	MT	0.72E	0.73
BLRN1	BLAIR	NE	0.71E	0.71
BFFS2	BUFFALO	SD	0.71E	0.71
BUFS2	BUFFALO	SD	0.71E	0.71
2WX	BUFFALO	SD	0.71	0.71
MGHW4	MOSIER GULCH	WY	0.71	0.71
RKVI4	ROCK VALLEY, ROCK R	IA	0.71	0.71
BADM8	BADGER PASS	MT	0.70	0.70
BLIN1	BLAIR 5WNW	NE	0.70E	0.70
BRJW4	BURGESS JUNCTION	WY	0.70	0.70
CLCM8	COLE CREEK	MT	0.70	0.70

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DDMM8	DEADMAN CREEK	MT	0.70	0.70
FRHM8	FROHNER MEADOW	MT	0.70	0.70
NEVM8	NEVADA CREEK	MT	0.70E	0.70
NVRM8	NEVADA RIDGE	MT	0.70	0.70
ORUN1	ORUM	NE	0.70E	0.70
PCKM8	PICKFOOT CREEK	MT	0.70	0.70
WCAS2	PRINGLE 5SE	SD	0.70	0.70
SIBI4	SIBLEY 3NE	IA	0.70	0.70
STCM8	STRINGER CREEK	MT	0.70	0.70
SMHM8	WHITE SULPHUR 25NNW	MT	0.70E	0.70
WNS2	WIND CAVE NATL PARK	SD	0.70E	0.70
SNOM8	LEWISTOWN 20SW	MT	0.69E	0.69
OMA	OMAHA EPPLEY FIELD	NE	0.69	0.69
ALBI4	ALBIA 3NNE	IA	0.68	0.69
BNTN1	BENNINGTON 3WSW	NE	0.68	0.69
MRTM8	MARTINSDALE 3NNW	MT	0.68E	0.69
WORM5	WORTHINGTON	MN	0.68E	0.69
GAPM8	JUDITH GAP	MT	0.67E	0.68
PHYM8	NEIHART 6S RAWS	MT	0.66E	0.67
DNSI4	DENISON	IA	0.65	0.65
HGRM8	HILGER	MT	0.65E	0.65
LAUN1	LAUREL	NE	0.65E	0.65
RNDN1	RANDOLPH 6S	NE	0.65E	0.65
BMTW4	THERMOPOLIS 9NE	WY	0.65E	0.65
HYRW4	HYATT RANCH	WY	0.64E	0.64
ANNS2	LEAD 6SW, ANNIE CR	SD	0.64	0.64
NHTM8	NEIHART 8NNW	MT	0.64E	0.64
TEKN1	TEKAMAH	NE	0.63	0.63
WSRM8	WHITE SULPHUR SPRNGS	MT	0.63E	0.63
BFFW4	BUFFALO 5WSW	WY	0.62E	0.63
GTTW4	GILLETTE 12S	WY	0.62E	0.63

LCMM8	LEWISTOWN	MT	0.62E	0.63
MGZM8	MILLEGAN 14SE	MT	0.62E	0.63
OZMN1	OSMOND	NE	0.62E	0.63
JHNS2	RAPID CITY 11W	SD	0.62	0.63
WPTN1	WEST POINT	NE	0.61	0.62
BOMM8	BOULDER MOUNTAIN	MT	0.60	0.61
BURW4	BURGESS JUNCTION	WY	0.60E	0.61
CBCN1	CENTER, BAZILE CR	NE	0.60E	0.61
CPKW4	CLOUD PEAK RESERVOIR	WY	0.60	0.61
CMBM8	COMBINATION	MT	0.60	0.61
GRDK1	GRIDLEY	KS	0.60	0.61
HNSW4	HANSEN SAWMILL	WY	0.60	0.61
JSDS2	JOHNSON SIDING	SD	0.60E	0.61
ONPM8	ONION PARK	MT	0.60	0.61
RAPS2	PACTOLA DAM	SD	0.60E	0.61
PRLK1	PARALLEL	KS	0.60	0.61
NRPS2	ROCHFORD 7NW	SD	0.60	0.61
SDMM8	SADDLE MOUNTAIN	MT	0.60	0.61
SCDW4	SPRING CREEK DIVIDE	WY	0.60	0.61
SUCW4	SUCKER CREEK	WY	0.60	0.61
TNDM8	TENDERFOOT RAWS	MT	0.60E	0.61
TIBM8	TIZER BASIN	MT	0.60	0.61

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TRPW4	TRIPLE PEAKS	WY	0.60	0.61
VDIM7	VANDIKE FARMS 4NNE	MO	0.60	0.61
WPNN1	WEST POINT, ELKHORN R	NE	0.60E	0.61
BUSS2	LEAD 11SSW	SD	0.59E	0.59
LTGW4	LITTLE GOOSE CREEK	WY	0.59	0.59
MRMM8	MARTINSDALE 2E	MT	0.59E	0.59
RACS2	RAPID CITY 4NW	SD	0.59	0.59
OWLS2	RED OWL	SD	0.59E	0.59
ATCI4	ATLANTIC 5SW, E NISH	IA	0.58E	0.58
SFJM8	CHECKERBOARD 12NE	MT	0.58	0.58
WYJN13	KAYCEE 17NNW	WY	0.58	0.58
LEWM8	LEWISTOWN 2SW	MT	0.58E	0.58
LWT	LEWISTOWN AIRPORT	MT	0.58	0.58
LSNM8	LITTLE SNOWY RAWS	MT	0.58E	0.58
FSNN1	OMAHA AIRPORT	NE	0.58E	0.58
WYWH1	TEN SLEEP 5NNW	WY	0.58E	0.58
RPKW4	BIG HORN 10WSW	WY	0.57E	0.57
BVKW4	BIG HORN 4W	WY	0.57	0.57
BLYW4	BILLY CREEK	WY	0.57E	0.57
BUJW4	BURGESS RAWS	WY	0.57	0.57
DCCS2	CENTRAL CITY	SD	0.57	0.57
BKFS2	CUSTER 10NW	SD	0.57E	0.57
3HT	HARLOWTON	MT	0.57E	0.57
NHRM8	NEIHART 7NW	MT	0.57E	0.57
BEGN1	BENNINGTON 3E	NE	0.56E	0.56
FAIS2	FAITH	SD	0.56E	0.56
D07	FAITH AIRPORT	SD	0.56	0.56
FTCN1	FORT CALHOUN	NE	0.56E	0.56
IRLN1	IRVINGTON 4NW	NE	0.56E	0.56

AMEN1	AMELIA	NE	0.55E	0.56
CRNI4	CORNING	IA	0.55	0.56
CREN1	CREIGHTON	NE	0.55E	0.56
GTNM8	GALLATIN GATEWAY 10S	MT	0.55E	0.56
HITN1	OMAHA (HITCHCOCK PK)	NE	0.55E	0.56
RYGM8	RYEGATE 18NNW	MT	0.55	0.56
SGOM8	SHENANGO RAWS	MT	0.55	0.56
FUHS2	SIOUX FALLS 7S	SD	0.55	0.56
OCKW4	THERMOPOLIS, OWL CR	WY	0.55	0.56
VALM8	VALENTINE	MT	0.55	0.56
ANSN1	ANSELMO 2SE	NE	0.54	0.55
BSNW4	BASIN	WY	0.54E	0.55
BHBW4	BASIN, BIGHORN R	WY	0.54	0.55
BULS2	BUFFALO 14SSW AMRAD	SD	0.54E	0.55
CHKI4	CHEROKEE, LTL SIOUX	IA	0.54E	0.55
COYI4	CORYDON 2NE	IA	0.54E	0.55
CSTI4	CRESCENT	IA	0.54E	0.55
CUT	CUSTER	SD	0.54	0.55
DBOM8	DEARBORN RAWS	MT	0.54	0.55
GTEW4	GILLETTE 8E	WY	0.54E	0.55
GNDM8	GLENDIVE	MT	0.54E	0.55
GLNM8	GLENDIVE, YELLOWSTONE	MT	0.54	0.55
LENI4	LEON 6ESE	IA	0.54	0.55
MOKI1	MOOSE CREEK	ID	0.54E	0.55

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OSMN1	OSMOND	NE	0.54E	0.55
RKRI4	ROCK RAPIDS	IA	0.54E	0.55
SPFN1	SPRINGFIELD	NE	0.54E	0.55
DUSM8	SWIFT DAM	MT	0.54E	0.55
WTON1	WATERLOO	NE	0.54E	0.55
BNRS2	BOXELDER CREEK	SD	0.53	0.53
CACS2	CAMP CROOK	SD	0.53	0.53
CAMS2	CAMP CROOK 1NW RAWS	SD	0.53E	0.53
CRRS2	CUSTER 2SW RAWS	SD	0.53E	0.53
HLWM8	HARLOWTON 1SW	MT	0.53E	0.53
KAYW4	KAYCEE, MID POWDER R	WY	0.53	0.53
ODEI4	ODEBOLT	IA	0.53E	0.53
PLVN1	PLAINVIEW	NE	0.53E	0.53
TCPW4	THERMOPOLIS 25WNW	WY	0.53E	0.53
ANAM8	ANACONDA	MT	0.52E	0.52
BGDW4	BIG GOOSE CREEK ABV	WY	0.52E	0.52
GRGI4	GEORGE	IA	0.52E	0.52
GDV	GLENDIVE	MT	0.52E	0.52
GBLW4	GREYBULL	WY	0.52E	0.52
GYBW4	GREYBULL, BIGHORN R	WY	0.52E	0.52
RWCi4	ROCKWELL CITY #2	IA	0.52E	0.52
OSCM8	ROY 2SE RAWS	MT	0.52E	0.52
TQE	TEKAMAH	NE	0.52	0.52
WRSM8	WISE RIVER RAWS	MT	0.52E	0.52
BTXW4	BLACK MOUNTAIN	WY	0.51E	0.51
GEY	GREYBULL	WY	0.51	0.51
HITI4	HONEY CREEK 1SE	IA	0.51	0.51

KEBN1	KENNARD 2SE	NE	0.51E	0.51
LUDS2	LUDLOW 3SSE	SD	0.51E	0.51
PACS2	PACTOLA RESERVOIR	SD	0.51E	0.51
PHIM8	PHILIPSBURG 2S	MT	0.51E	0.51
ECHS2	RAPID CITY 5W	SD	0.51	0.51
WCMS2	SIOUX FALLS 6SE	SD	0.51E	0.51
SULM8	SULA 3ENE	MT	0.51E	0.51
SUNW4	SUNSHINE 3NE	WY	0.51	0.51
OTG	WORTHINGTON AIRPORT	MN	0.51	0.51
ZNAS2	ZEONA 10SSW	SD	0.51E	0.51
BLTW4	BEARTOOTH LAKE	WY	0.50	0.50
CMDM8	CLOVER MEADOW	MT	0.50	0.50
DHLM8	DARKHORSE LAKE	MT	0.50	0.50
WYSH12	DAYTON 12WNW	WY	0.50	0.50
DEAS2	DEADWOOD	SD	0.50E	0.50
FLAW4	FT LARAMIE 5SSW	WY	0.50E	0.50
TIZM8	JEFFERSON CITY	MT	0.50E	0.50
LMHM8	LEMHI RIDGE	MT	0.50	0.50
LUBM8	LUBRECHT FLUME	MT	0.50	0.50
MRQW4	MARQUETTE CREEK	WY	0.50	0.50
MULM8	MULE CREEK	MT	0.50	0.50
BNNS2	NEMO, BOXELDER CR	SD	0.50E	0.50
NFEM8	NORTH FORK ELK CREEK	MT	0.50	0.50
OFLW4	OLD FORT LARAMIE	WY	0.50	0.50
IRIS2	RAPID CITY 6W	SD	0.50	0.50
ROPM8	ROUNDUP	MT	0.50E	0.50

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SFSM8	SOUTH FORK SHIELDS	MT	0.50	0.50
THMW4	THERMOPOLIS	WY	0.50E	0.50
TIEW4	TIE CREEK	WY	0.50	0.50
YNNS2	YANKTON, JAMES R	SD	0.50E	0.50
BGSM8	BIG SKY 2WNW	MT	0.49E	0.50
HRSN1	CHADRON 6S RAW	NE	0.49	0.50
COSS2	CORSON, SPLIT ROCK C	SD	0.49	0.50
HSGS2	DEADWOOD	SD	0.49E	0.50
OSAS2	HERMOSA, BATTLE CR	SD	0.49	0.50
HORM8	HORSE THIEF RAW	MT	0.49	0.50
HHRW4	HYATTVILLE 6NE	WY	0.49E	0.50
LVAM7	LIVONIA	MO	0.49E	0.50
LVZM7	LIVONIA, CHARITON R	MO	0.49	0.50
PCMI4	MERRILL 6SW	IA	0.49E	0.50
CBUM8	MOSBY 39NNW	MT	0.49	0.50
PKRS2	PARKER, WEST FORK	SD	0.49	0.50
PHGM8	PHILIPSBURG RAW	MT	0.49E	0.50
RUPM8	ROUNDUP, MUSSELSHELL	MT	0.49E	0.50
WAVS2	SUX FALLS WESTERN AV	SD	0.49	0.50
WYNN1	WAYNE	NE	0.49	0.50
BLNM8	BALLANTINE	MT	0.48E	0.48
CUTS2	CUSTER (AMRAD)	SD	0.48E	0.48
DOWM7	DOWNING	MO	0.48	0.48
GRTN1	GRETNA 3ESE	NE	0.48E	0.48
GRAN1	GRETNA 4NE	NE	0.48	0.48



FRBS2	KEYSTONE 18SE	SD	0.48E	0.48
MILM8	MILES CITY 1NW	MT	0.48E	0.48
MLS	MILES CITY AIRPORT	MT	0.48	0.48
OWLW4	OWL CREEK	WY	0.48E	0.48
DDEW4	TORRINGTON 29N	WY	0.48	0.48
WAYN1	WAYNE 4NW	NE	0.48E	0.48
AWSW4	ADAMS RAWS	WY	0.47	0.47
HARS2	HARDING 3SE	SD	0.47E	0.47
LEIW4	LEIGH CREEK RAWS	WY	0.47E	0.47
MARS2	MARION	SD	0.47E	0.47
MICM8	MILES CITY, TONGUE R	MT	0.47E	0.47
PPLN1	PAPILLION	NE	0.47	0.47
PWBN1	PAPILLION #2	NE	0.47E	0.47
EKCS2	RAPID CITY, ELK CR	SD	0.47E	0.47
RIMM8	RIMINI 4NE	MT	0.47E	0.47
WYSH13	SHERIDAN 11SSE	WY	0.47E	0.47
TFRW4	TEN SLEEP 4NE	WY	0.47E	0.47
HUTM8	UTICA 11WSW	MT	0.47E	0.47
BHRW4	BIG HORN	WY	0.46	0.47
CUSS2	CUSTER	SD	0.46E	0.47
TFX	GREAT FALLS WFO	MT	0.46	0.47
HVRS2	HOOVER	SD	0.46	0.47
HMBK1	HUMBOLDT	KS	0.46	0.47
KLOM8	KILO RAWS	MT	0.46E	0.47
MLI	MOLINE	IL	0.46	0.47
OMHN1	OMAHA, MISSOURI R	NE	0.46E	0.47
RDPK1	RANDOLPH, FANCY CR	KS	0.46E	0.47
ULMM8	ULM 6E, MISSOURI R	MT	0.46E	0.47

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YKN	YANKTON	SD	0.46	0.47
CYKW4	BIG HORN, CONEY CR	WY	0.45E	0.45
BRAS2	BRANDON	SD	0.45E	0.45
CSMM8	CASCADE 5S	MT	0.45E	0.45
CNUK1	CHANUTE 3N GDDS	KS	0.45	0.45
3DU	DRUMMOND 2SW	MT	0.45E	0.45
EKWN1	ELKHORN 1NW	NE	0.45E	0.45
GBBI1	GIBBONSVILLE	ID	0.45E	0.45
JMEI4	JAMES 1NE, FLOYD R	IA	0.45E	0.45
LKPI4	LAKE PARK	IA	0.45E	0.45
LEAS2	LEAD	SD	0.45E	0.45
LINM7	LINNEUS	MO	0.45E	0.45
LNNM7	LINNEUS 3SE	MO	0.45	0.45
MANK1	MANKATO	KS	0.45	0.45
RAVS2	RAPID CITY 11SW	SD	0.45E	0.45
HCGS2	RAPID CITY 8W	SD	0.45E	0.45
WREM8	ROSCOE, W ROSEBUD CR	MT	0.45E	0.45
SFHS2	SPEARFISH CREEK	SD	0.45E	0.45
TERM8	TERRY 1E	MT	0.45E	0.45
WHHM8	WHITEHALL RAWS	MT	0.45E	0.45
WINM8	WINIFRED	MT	0.45E	0.45
CYNS2	CANYON LAKE ABOVE	SD	0.44E	0.44
DOOI4	DOON 4ENE	IA	0.44E	0.44

RCA	ELLSWORTH AFB	SD	0.44E	0.44
GSSM8	GRASS RANGE	MT	0.44E	0.44
GTF	GREAT FALLS AIRPORT	MT	0.44	0.44
HLTM8	HOLTER DAM 3ESE	MT	0.44E	0.44
LADS2	LADNER 9SW	SD	0.44E	0.44
MLDM8	MILDRED 5N	MT	0.44E	0.44
PLSM8	POLARIS 4N	MT	0.44E	0.44
PRMI4	PROMISE CITY 6NW	IA	0.44	0.44
RDHK1	RANDOLPH 4WNW	KS	0.44E	0.44
RAPI4	ROCK RAPIDS, ROCK R	IA	0.44E	0.44
SOLI4	SOLDIER	IA	0.44E	0.44
OCAW4	THERMOPOLIS, OWL CR	WY	0.44E	0.44
UNIS2	UNION CENTER	SD	0.44E	0.44
BUOS2	ANTELOPE RANGER STA	SD	0.43E	0.44
GSWM8	BIG SKY 3S	MT	0.43E	0.44
DYTW4	DAYTON	WY	0.43E	0.44
ELKS2	ELK POINT 13NE	SD	0.43E	0.44
KIMW4	GILLETTE	WY	0.43E	0.44
GLDS2	GLAD VALLEY 2W	SD	0.43E	0.44
GCOS2	GRACE COOLIDGE CR	SD	0.43E	0.44
GSRM8	GRASS RANGE 13NE	MT	0.43E	0.44
GUEW4	GUERNSEY DAM	WY	0.43E	0.44
HOYM8	HOYT 3SW	MT	0.43E	0.44
RCWS2	RAPID CITY 4SW	SD	0.43E	0.44
RAFM8	RAYNESFORD 2NNW	MT	0.43E	0.44
CHRS2	REDSHIRT, CHEYENNE R	SD	0.43	0.44
RYEM8	RYEGATE 2E	MT	0.43E	0.44
BFCW4	WINCHESTER 2NE	WY	0.43E	0.44
CUST015	ANSELMO 9NW	NE	0.42E	0.42
CLOI4	CLIO 4NW	IA	0.42E	0.42

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DROS2	DEADWOOD 15SSE	SD	0.42E	0.42
EMBW4	EMBLEM	WY	0.42E	0.42
GEEW4	GILLETTE 11E	WY	0.42E	0.42
GURW4	GUERNSEY 2NW	WY	0.42E	0.42
IOAK1	IOLA 1W	KS	0.42	0.42
MCRW4	MILL CREEK RAWS	WY	0.42	0.42
KTFM8	MIZPAH 12NE	MT	0.42	0.42
HHDS2	OELRICHS, HORSEHEAD C	SD	0.42	0.42
OSEI4	OSCEOLA	IA	0.42	0.42
RCYS2	RAPID CITY, RAPID CR	SD	0.42	0.42
SPRS2	SPEARFISH (AMRAD)	SD	0.42E	0.42
STOW4	STORY	WY	0.42E	0.42
VRNS2	VERMILLION	SD	0.42E	0.42
SVMS2	VERMILLION STORMNET	SD	0.42E	0.42
WYSH5	BANNER 4E	WY	0.41E	0.41
BGPS2	BUFFALO GAP	SD	0.41E	0.41
BFGS2	BUFFALO GAP, CHEYENNE	SD	0.41E	0.41
BFGS2	BUFFALO GAP, CHEYENNE	SD	0.41E	0.41
RIPS2	DEADMAN GULCH	SD	0.41	0.41
FCRM8	FRENCH CREEK RAWS	MT	0.41E	0.41
HERS2	HERMOSA, BATTLE CR	SD	0.41	0.41

SHIM5	HILLS	MN	0.41E	0.41
SBRM8	HUNTLEY EXP STATION	MT	0.41E	0.41
LAN52	LANTRY 4NW RAWS	SD	0.41	0.41
LAVM8	LAVINA	MT	0.41E	0.41
MTEW4	MEETEETSE	WY	0.41E	0.41
GRLM8	MORONY DAM	MT	0.41E	0.41
EWK	NEWTON AIRPORT	KS	0.41E	0.41
NZCM8	NEZ PERCE CAMP	MT	0.41E	0.41
CHCS2	PLAINVIEW, CHERRY CR	SD	0.41E	0.41
RABN1	RALSTON	NE	0.41E	0.41
ROCS2	ROCHFORD 2WNW	SD	0.41E	0.41
RLAM8	ROUNDUP 15SW	MT	0.41	0.41
TEAS2	TEA (AMRAD)	SD	0.41E	0.41
AKRI4	AKRON, BIG SIOUX R	IA	0.40E	0.41
BLKM8	BLACK PINE	MT	0.40	0.41
BRCM8	BRACKETT CREEK	MT	0.40	0.41
BRLK1	BURLINGTON	KS	0.40E	0.41
CLVM8	CALVERT CREEK	MT	0.40	0.41
WBCS2	DEADWOOD 2NE	SD	0.40E	0.41
DMLW4	DOVE LAKE	WY	0.40	0.41
DUPS2	DUPREE	SD	0.40E	0.41
EGMS2	EDGEMONT 23NNW	SD	0.40E	0.41
FSHM8	FISHER CREEK	MT	0.40	0.41
GSBN1	GRETNA 3NE	NE	0.40E	0.41
LVRM8	LAKEVIEW RIDGE	MT	0.40	0.41
BSKM8	LONE MOUNTAIN	MT	0.40	0.41
MTKM8	MOUNT LOCKHART	MT	0.40	0.41
OVNM8	OVANDO DCP	MT	0.40E	0.41
PICM8	PIKE CR SNT	MT	0.40	0.41
VAVS2	RAPID CITY 11W	SD	0.40E	0.41
RELM8	RED LODGE	MT	0.40E	0.41
RKPM8	ROCKER PEAK	MT	0.40	0.41

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CRSW4	SPENCER, CHEYENNE R	WY	0.40 0.41
SWAN1	SWAN LAKE	NE	0.40E 0.41
CHUM8	WALDRON	MT	0.40 0.41
WALM8	WALDRON	MT	0.40E 0.41
WRMM8	WARM SPRINGS	MT	0.40 0.41
WHTM8	WHITE MILL	MT	0.40 0.41
WISM8	WISDOM	MT	0.40E 0.41
WRTW4	WRIGHT	WY	0.40E 0.41
WYLM8	WYOLA 1SW	MT	0.40E 0.41
ANGS2	ANGOSTURA DAM BELOW	SD	0.39 0.39
BSTM8	BIG SKY RESORT	MT	0.39E 0.39
LCFM8	BROCKWAY 18S	MT	0.39 0.39
ATRS2	BUFFALO 14SE	SD	0.39E 0.39
CASM8	CASCADE	MT	0.39E 0.39
CSEM8	CASCADE 20SSE	MT	0.39E 0.39
CLRW4	CLEARMONT 5SW	WY	0.39E 0.39
DVDM8	DIVIDE, BIG HOLE R	MT	0.39E 0.39
FWFM8	GRASS RANGE 19SSE	MT	0.39E 0.39
RUSS2	KEYSTONE 5SE	SD	0.39E 0.39

LVEW4	LOVELL, BIGHORN R	WY	0.39	0.39
ROYM8	ROY 8NE	MT	0.39E	0.39
RYTM8	RYEGATE	MT	0.39E	0.39
SKCM8	SOUTH KIRBY RAWS	MT	0.39E	0.39
SPBM8	SPOTTED BEAR RAWS	MT	0.39E	0.39
ULLM8	ULM 8SE	MT	0.39E	0.39
WESW4	WESTON 1E	WY	0.39E	0.39
JVWM8	WHITEHALL 7SW	MT	0.39E	0.39
BEAS2	BUFFALO GAP 2S	SD	0.38E	0.38
CNU	CHANUTE	KS	0.38	0.38
CDHS2	COTTONWOOD DAM	SD	0.38E	0.38
CSPS2	CUSTER 12ESE RAWS	SD	0.38E	0.38
IONK1	IONIA	KS	0.38	0.38
GNKS2	KEYSTONE 1SW	SD	0.38	0.38
LNSM7	LINNEUS, LOCUST CR	MO	0.38	0.38
HACM8	MILES CITY 17NE	MT	0.38E	0.38
OELS2	OELRICHS	SD	0.38	0.38
BIGS2	RAPID CITY, RAPID CR	SD	0.38	0.38
SPES2	SPEARFISH	SD	0.38E	0.38
TRNI4	TURIN 4SW, M-H DITCH	IA	0.38E	0.38
VALS2	VALLEY SPRINGS	SD	0.38E	0.38
WILM8	WILLSALL 8ENE	MT	0.38E	0.38
CHUM7	CHULA, MUDDY CR	MO	0.37E	0.38
WYSH11	CLEARMONT 9WSW	WY	0.37E	0.38
DBCM8	DRY BLOOD CREEK RAWS	MT	0.37E	0.38
GTFM8	GREAT FALLS 16TH ST	MT	0.37E	0.38
JORM8	JORDAN	MT	0.37E	0.38
JDN	JORDAN	MT	0.37	0.38
GAKS2	KEYSTONE 4SW	SD	0.37E	0.38
LKVM8	LAKEVIEW	MT	0.37E	0.38
ROBS2	ROUBAIX, ELK CREEK	SD	0.37	0.38
SACI4	SAC CITY	IA	0.37	0.38
SCHN1	SCHUYLER	NE	0.37	0.38
SLBI4	STORM LAKE 2E	IA	0.37E	0.38

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TAKM7	TARKIO #2	MO	0.37	0.38
TURI4	TURIN, LTL SIOUX R	IA	0.37E	0.38
WLKS2	WALL LAKE	SD	0.37E	0.38
WLPS2	WALL LAKE	SD	0.37	0.38
WRVM8	WISE RIVER 3WNW	MT	0.37E	0.38
DOHS2	BAKER PARK RAWS	SD	0.36E	0.37
BLBN1	BLAIR 4SW	NE	0.36E	0.37
HATS2	EDGEMONT, HAT CR	SD	0.36	0.37
FTLM8	FT LOGAN GDOS	MT	0.36E	0.37
GLNS2	GALENA, BEAR BUTTE C	SD	0.36E	0.37
HSYN1	HALSEY 2W	NE	0.36	0.37
NESN1	HASKELL AGRICULTURAL	NE	0.36E	0.37
HRFS2	HEREFORD 12SW	SD	0.36E	0.37
HRMN1	HERMAN	NE	0.36E	0.37
LVM	LIVINGSTON AIRPORT	MT	0.36	0.37
MIZM8	MIZPAH 4NNW	MT	0.36E	0.37
RNMS2	MT RUSHMORE NATL MEM	SD	0.36E	0.37

NMOS2	NEMO 1SW	SD	0.36E	0.37
UNRS2	RAPID CITY WFO	SD	0.36E	0.37
UNR	RAPID CITY WFO	SD	0.36E	0.37
TARM7	TARKIO 1SW	MO	0.36E	0.37
VDLN1	VERDEL 6SSE	NE	0.36	0.37
VRDN1	VERDEL, NIOBRARA R	NE	0.36E	0.37
WHBW4	WHALEN DAM	WY	0.36E	0.37
WHAW4	WHALEN DAM (USBR)	WY	0.36E	0.37
WPKS2	WHITETAIL PEAK RAWS	SD	0.36	0.37
BHMM8	WYOLA 25WSW	MT	0.36	0.37
ALRI4	ALLERTON	IA	0.35	0.35
CUST014	ANSELMO 12WSW	NE	0.35E	0.35
ATLI4	ATLANTIC 1NE	IA	0.35	0.35
AUSM8	AUSTIN 1W	MT	0.35E	0.35
BABM8	BABB 4SW	MT	0.35E	0.35
BETS2	BETHLEHEM CAVE	SD	0.35E	0.35
BLFM8	BYNUM 7NW	MT	0.35E	0.35
CDNN1	CHADRON	NE	0.35E	0.35
DIK	DICKINSON AIRPORT	ND	0.35	0.35
EDMS2	EDGEMONT (AMRAD)	SD	0.35E	0.35
FSTM8	FISHTAIL	MT	0.35E	0.35
GPKM8	GATE PARK RAWS	MT	0.35E	0.35
PCHI4	HINTON 4W, PERRY CR	IA	0.35E	0.35
JWLK1	JEWELL	KS	0.35E	0.35
KSTS2	KEYSTONE, SPRING CR	SD	0.35E	0.35
LDKM8	LANDUSKY 20S	MT	0.35E	0.35
LBCM8	LITTLE BULLWHACKER C	MT	0.35	0.35
LOUN1	LOUISVILLE, PLATTE R	NE	0.35E	0.35
ONLN1	ONEILL	NE	0.35	0.35
RKSM8	ROCK SPRINGS	MT	0.35E	0.35
SQFM8	WISDOM 12NNE	MT	0.35E	0.35
AGTN1	AGATE 3ENE RAWS	NE	0.34E	0.34
BOHN1	BOYSTOWN #2	NE	0.34E	0.34
BRRM8	BRENNER RAWS	MT	0.34E	0.34
BBW	BROKEN BOW 2W	NE	0.34	0.34
BKNN1	BROKEN BOW 2W	NE	0.34E	0.34

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SWNN1	CHAMBERS 18W	NE	0.34E	0.34
CCCS2	CUSTER CROSSING CAMP	SD	0.34E	0.34
EMTS2	EDGEMONT	SD	0.34E	0.34
GALS2	GALENA	SD	0.34E	0.34
GSNM8	GLEASON RAWS	MT	0.34E	0.34
HSCS2	HERMOSA 7N	SD	0.34E	0.34
TDFS2	HILL CITY, SPRING CR	SD	0.34	0.34
KEYS2	KEYSTONE	SD	0.34E	0.34
LKWM5	LAKE WILSON	MN	0.34E	0.34
PRKS2	PARKER, WEST FORK	SD	0.34E	0.34
AGAN1	AGATE 3E	NE	0.33E	0.34
BFOS2	BELLE FOURCHE 22NNW	SD	0.33E	0.34
BPKS2	BLIND PARK #2	SD	0.33E	0.34
BRKN1	BROKEN BOW #2	NE	0.33E	0.34
BKTI4	BROKEN KETTLE RAWS	IA	0.33E	0.34

EDGS2	EDGEMONT, CHEYENNE R	SD	0.33E	0.34
FTMS2	FORT MEADE	SD	0.33E	0.34
HRWM8	HELENA 3N RAW	MT	0.33E	0.34
ORLS2	ORAL	SD	0.33	0.34
HOLT008	PAGE 5WNW	NE	0.33E	0.34
HAWS2	RAPID CR BELOW DITCH	SD	0.33	0.34
REJ	REDIG	SD	0.33E	0.34
SBFS2	STURGIS 20NE	SD	0.33E	0.34
WAKN1	WAKEFIELD	NE	0.33	0.34
ANTI4	ANTHON 3E	IA	0.32E	0.32
BELS2	BELLE FOURCHE	SD	0.32E	0.32
RWRS2	BELLE FOURCHE 1NW	SD	0.32	0.32
BISS2	BISON	SD	0.32E	0.32
CPTS2	CAPUTA 1SW	SD	0.32E	0.32
CBKS2	COLD BROOK DAM	SD	0.32E	0.32
CRAS2	CUSTER 4N	SD	0.32E	0.32
DERM8	DEER LODGE 3W	MT	0.32E	0.32
DCRM8	EAST GLACIER 8SE	MT	0.32	0.32
FARS2	FARMINGDALE, RAPID C	SD	0.32E	0.32
GAAM8	GALENA RAW	MT	0.32E	0.32
ISMM8	ISMAY	MT	0.32E	0.32
LNGW4	LINGLE, RAWHIDE CR	WY	0.32E	0.32
SLDM8	LIVINGSTON 7NE	MT	0.32E	0.32
MRVK1	MARYSVILLE	KS	0.32	0.32
RCTS2	RAPID CITY (AMRAD)	SD	0.32E	0.32
SIOS2	SIOUX FALLS	SD	0.32E	0.32
FSD	SIOUX FALLS	SD	0.32	0.32
VBVS2	VICTORIA DAM	SD	0.32	0.32
WEEN1	WEeping WATER 3N	NE	0.32E	0.32
BRBM8	BARBER	MT	0.31E	0.31
ROCK002	BASSETT 14SE	NE	0.31E	0.31
ROKW4	BUFFALO 12NW, ROCK C	WY	0.31	0.31
CSAI4	CASTANA EXP FARM	IA	0.31	0.31
CTLS2	CASTLEROCK 4NW	SD	0.31E	0.31
ERFM8	ERVIN RIDGE GDDS	MT	0.31E	0.31
MDCS2	HILL CITY 8SW	SD	0.31E	0.31
HOSS2	HOT SPRINGS	SD	0.31E	0.31
HOHS2	HOT SPRINGS (AMRAD)	SD	0.31E	0.31

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HOTS2	HOT SPRINGS, FALL R	SD	0.31	0.31
IRES2	IRENE	SD	0.31E	0.31
KBYW4	KIRBY 1W	WY	0.31E	0.31
LWD	LAMONI	IA	0.31	0.31
LNXI4	LENOX	IA	0.31E	0.31
MYSM8	MYSTIC LAKE	MT	0.31E	0.31
PSBN1	PAPILLION 6NW	NE	0.31E	0.31
MLDN1	PAPIO CREEK DAM	NE	0.31E	0.31
PNHM8	PINE HILL RAW	MT	0.31E	0.31
UPCS2	RAPID CITY 13W	SD	0.31E	0.31
SCRN1	SCRIBNER	NE	0.31E	0.31
SXFS2	SIOUX FALLS NO CLIFF	SD	0.31E	0.31
FSDS2	SIOUX FALLS WFO	SD	0.31E	0.31

WILS2	WILSON CREEK CAMP	SD	0.31	0.31
ABRM8	ALBRO LAKE	MT	0.30	0.31
AXTK1	AXTELL	KS	0.30	0.31
WHEE001	BARTLETT 9NW	NE	0.30E	0.31
BATS2	BATTLE MTN NFS	SD	0.30E	0.31
BWPM8	BILLINGS WATER PLANT	MT	0.30E	0.31
BLOM8	BLOODY DICK	MT	0.30	0.31
DIVM8	DIVIDE	MT	0.30	0.31
DDGN1	DODGE	NE	0.30E	0.31
EKPW4	ELKHART PARK	WY	0.30	0.31
GRSW4	GRASSY LAKE	WY	0.30	0.31
GRLW4	GRASSY LAKE DAM	WY	0.30E	0.31
LLLK1	LILLIS	KS	0.30	0.31
LDSM8	LINDSAY	MT	0.30E	0.31
LRGM8	LIVINGSTON AIRPORT	MT	0.30	0.31
MNLN1	MANLEY	NE	0.30E	0.31
MANM8	MANY GLACIER SNT	MT	0.30	0.31
MPTI4	MAPLETON #2	IA	0.30E	0.31
MAPI4	MAPLETON, MAPLE R	IA	0.30E	0.31
MDDW4	MIDDLE POWDER	WY	0.30	0.31
MNPM8	MONUMENT PEAK	MT	0.30	0.31
NFJM8	NORTH FORK JOCKO	MT	0.30	0.31
NYEM8	NYE #2	MT	0.30E	0.31
CBYN1	OMAHA	NE	0.30E	0.31
PLCM8	PLACER BASIN	MT	0.30	0.31
RAP	RAPID CITY	SD	0.30	0.31
RENS2	RENNER	SD	0.30E	0.31
SAJM8	SACAJAWEA	MT	0.30	0.31
SHFM8	SHOWER FALLS	MT	0.30	0.31
SFLS2	SIOUX FALLS 38A	SD	0.30E	0.31
SKLM8	SKYLARK TRAIL	MT	0.30E	0.31
SNIW4	SNIDER BASIN	WY	0.30	0.31
BHRM8	YELLOWTAIL DAM	MT	0.30E	0.31
ARMM8	ARMELLS CREEK RAWLS	MT	0.29	0.29
BTLI4	BATTLE CREEK 3NE	IA	0.29	0.29
CRRI4	CORRECTIONVILLE 1SW	IA	0.29E	0.29
DRFS2	DEERFIELD RESERVOIR	SD	0.29E	0.29
ENSM8	ENNIS	MT	0.29E	0.29
GLNK1	GLEN ELDER DAM	KS	0.29E	0.29
GLFM8	GULF RAWLS	MT	0.29E	0.29

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JPSN1	HARRISON 4NW	NE	0.29E	0.29
HOWN1	HOWELLS	NE	0.29E	0.29
JACM8	JACKSON	MT	0.29E	0.29
LNPM8	LENNEP 5SW	MT	0.29E	0.29
LUVN5	LUVERNE, ROCK R	MN	0.29E	0.29
LYON1	LYONS	NE	0.29E	0.29
MELM8	MELSTONE	MT	0.29E	0.29
MITN1	MITCHELL 5E	NE	0.29E	0.29
UFMN1	MITCHELL 6ENE	NE	0.29	0.29
OAKN1	OAKLAND	NE	0.29E	0.29
PIER008	PIERCE 9W	NE	0.29E	0.29

PURN1	PURDUM	NE	0.29E	0.29
SEWS2	RAPID CITY 7SE	SD	0.29	0.29
RBDW4	REDBIRD	WY	0.29E	0.29
RGUS2	RENO GULCH	SD	0.29E	0.29
SRBN1	SCRIBNER, PEBBLE CR	NE	0.29E	0.29
SHR	SHERIDAN AIRPORT	WY	0.29	0.29
WGSW4	SHERIDAN SCHOOL	WY	0.29E	0.29
SSMM8	SOUTH SAWMILL GDDS	MT	0.29	0.29
TEPM8	TEPEE POINT RAWs	MT	0.29E	0.29
VOLM8	VOLBORG	MT	0.29E	0.29
WTRN1	WATERLOO, ELKHORN R	NE	0.29E	0.29
WNSN1	WINSIDE	NE	0.29E	0.29
WHEE002	BARTLETT 9NE	NE	0.28E	0.28
BGHM8	BIG HORN 4SW GDDS	MT	0.28E	0.28
EBMM8	BOULDER MINE SNOTEL	MT	0.28E	0.28
BKYM8	BROCKWAY 3WSW	MT	0.28E	0.28
CTCS2	CASTLE CREEK ABV RES	SD	0.28	0.28
DFDS2	DEERFIELD 3SE	SD	0.28E	0.28
FLAN8	FLASHER	ND	0.28	0.28
FMTN1	FREMONT	NE	0.28	0.28
MOWH1	GRANT CITY 4WSW	MO	0.28E	0.28
GRTM7	GRANT CITY 5WSW	MO	0.28	0.28
GLUN8	HEART BUTTE DAM	ND	0.28	0.28
HILS2	HILL CITY 5S AMRAD	SD	0.28E	0.28
HUMS2	HUMBOLT	SD	0.28E	0.28
IWDI4	INWOOD	IA	0.28E	0.28
LERK1	LE ROY	KS	0.28E	0.28
BOUM8	MONTANA DEV CENTER	MT	0.28E	0.28
RRDM8	RED ROCK RAWs	MT	0.28E	0.28
SELM8	SEELEY LAKE	MT	0.28E	0.28
RSRS2	SIOUX FALLS 5SW	SD	0.28E	0.28
SIFS2	SIOUX FALLS,SKUNK CR	SD	0.28	0.28
SLDW4	SOLDIER PARK SNOTEL	WY	0.28E	0.28
TILN1	TILDEN	NE	0.28E	0.28
YLWM8	YELLOW MULE RAWs	MT	0.28E	0.28
BHK	BAKER	MT	0.27	0.28
BAKM8	BAKER	MT	0.27E	0.28
BIL	BILLINGS INTL AP	MT	0.27	0.28
BINS2	BISON (AMRAD)	SD	0.27E	0.28
BOXN1	BOX BUTTE DAM	NE	0.27E	0.28
GARF005	BURWELL 20NE	NE	0.27E	0.28
CHDN1	CHADRON 3SW	NE	0.27E	0.28

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ENNM8	ENNIS RAWs	MT	0.27E 0.28
FSLM8	FISHTAIL 7W RAWs	MT	0.27E 0.28
FRUS2	FRUITDALE 3NW	SD	0.27E 0.28
GARS2	GARRETSON	SD	0.27E 0.28
HFDS2	HARTFORD	SD	0.27E 0.28
HICS2	HILL CITY	SD	0.27E 0.28
KLYM8	KELLY RAWs	MT	0.27E 0.28
LVNN1	LINCOLN, STEVENS CR	NE	0.27 0.28
LOCM8	LOCATE, POWDER R	MT	0.27E 0.28



LOVW4	LOVELL	WY	0.27E	0.28
PNDN1	PENDER	NE	0.27E	0.28
PEDN1	PENDER, LOGAN CR	NE	0.27E	0.28
HAFW4	PINEDALE	WY	0.27E	0.28
PIPM5	PIPESTONE	MN	0.27	0.28
PVRN1	PLAINSVIEW RANCH	NE	0.27E	0.28
RPHS2	RALPH 1N	SD	0.27E	0.28
RPJM8	RAPELJE 4S	MT	0.27E	0.28
STOS2	ST ONGE 2S	SD	0.27E	0.28
STNM8	STANFORD	MT	0.27E	0.28
TYNM8	TERRY 21NNW	MT	0.27E	0.28
VDGN1	VERDIGRE	NE	0.27E	0.28
BYZ	BILLINGS WFO	MT	0.26E	0.26
CDR	CHADRON	NE	0.26	0.26
WBMN1	CHADRON 3NE	NE	0.26E	0.26
WCCS2	CROOKS, WILLOW CR	SD	0.26	0.26
LSKM5	CURRIE	MN	0.26E	0.26
RDCS2	EDGEMONT 7NE	SD	0.26E	0.26
HAKM8	EKALAKA 28SSE	MT	0.26E	0.26
HAFS2	HARTFORD	SD	0.26E	0.26
HLKI4	HAVELOCK	IA	0.26E	0.26
IDGI4	IDA GROVE 5NW	IA	0.26E	0.26
JUDS2	KEYSTONE, BATTLE CR	SD	0.26	0.26
S69	LINCOLN RANGER STA	MT	0.26E	0.26
LINM8	LINCOLN RANGER STA	MT	0.26E	0.26
LIVM8	LIVINGSTON 5S	MT	0.26E	0.26
MAKM8	MAC KENZIE	MT	0.26E	0.26
MTAM8	MALTA 35S	MT	0.26E	0.26
CUST021	MERNA 11W	NE	0.26E	0.26
NBRN1	NIOBRARA 6WSW	NE	0.26E	0.26
RCHM8	RICHEY 10SW	MT	0.26E	0.26
SCES2	SCENIC 9NE	SD	0.26E	0.26
SOUI4	SIOUX CITY 8N	IA	0.26E	0.26
WHTI4	WASHTA	IA	0.26E	0.26
BTLN1	BARTLETT 1S	NE	0.25	0.25
BFIS2	BELLE FOURCHE DIV	SD	0.25E	0.25
CRKS2	CROOKS	SD	0.25E	0.25
EABS2	EAGLE BUTTE	SD	0.25E	0.25
EDTS2	EDGEMONT 13NW	SD	0.25E	0.25
HTFS2	HARTFORD, SKUNK CR	SD	0.25	0.25
HVMM8	HELENA 4NE	MT	0.25E	0.25
JRDM8	JORDAN 25N	MT	0.25E	0.25
LNBM8	LINDBERGH LAKE	MT	0.25E	0.25
LYNS2	LYONS 5SSW	SD	0.25E	0.25

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ID	DESCRIPTION	STATE	06/10	SUM
MRNK1	MORAN	KS	0.25E	0.25
MOVI4	MOVILLE	IA	0.25E	0.25
ROCK004	NEWPORT 11S	NE	0.25E	0.25
OFK	NORFOLK AIRPORT	NE	0.25	0.25
NFKN1	NORFOLK, ELKHORN R	NE	0.25E	0.25
OMLN1	OMAHA 5W	NE	0.25E	0.25
PINW4	PINEDALE 1NE	WY	0.25E	0.25

PNYM8	PONY	MT	0.25E	0.25
SCNS2	SCENIC, CHEYENNE R	SD	0.25	0.25
SUNS2	SUNDAY GULCH	SD	0.25	0.25
TNBM8	TWIN BRIDGES	MT	0.25E	0.25
VNRM8	VAN NORMAN 4NE	MT	0.25E	0.25
WASS2	WASTA 3E, CHEYENNE R	SD	0.25	0.25
WISN1	WISNER	NE	0.25E	0.25
BKRW4	BECHLER RANGER STA	WY	0.24E	0.24
JRLK1	BURLINGTON 3N	KS	0.24E	0.24
CFTK1	CLIFTON	KS	0.24	0.24
DPCM8	DEEP CREEK PASS	MT	0.24E	0.24
DBYM8	DERBY MOUNTAIN RAWS	MT	0.24E	0.24
DNDN8	DICKINSON DAM	ND	0.24E	0.24
EWGN1	EWING	NE	0.24E	0.24
LGNM8	FORT LOGAN 4ESE	MT	0.24E	0.24
FRKK1	FRANKFORT	KS	0.24E	0.24
GLLW4	GILLETTE	WY	0.24E	0.24
HAWI4	HAWARDEN,BIG SIOUX R	IA	0.24E	0.24
HASN1	HAY SPRINGS 12S	NE	0.24E	0.24
SXNI4	JAMES 4W	IA	0.24E	0.24
LCKW4	LANCE CREEK 1W	WY	0.24E	0.24
LAWI4	LAWTON	IA	0.24E	0.24
LRYK1	LEROY	KS	0.24E	0.24
LESN1	LESHARA, PLATTE R	NE	0.24E	0.24
LMAM8	LIMA	MT	0.24E	0.24
LNCM8	LINCOLN 2NE RAWS	MT	0.24E	0.24
LYNN1	LYNCH	NE	0.24	0.24
LBZM7	MACON, LTL CHARITON	MO	0.24	0.24
MARN1	MARTINSBURG	NE	0.24E	0.24
VRPS2	PARKER, EAST FORK	SD	0.24	0.24
PLEM8	PLEVNA	MT	0.24E	0.24
WRPM8	ROGERS PASS 9NNE	MT	0.24E	0.24
SHPK1	SHARPE 3E	KS	0.24E	0.24
SIOI4	SIOUX CITY, PERRY CR	IA	0.24	0.24
WTAS2	WASTA	SD	0.24E	0.24
BDLM8	WHITEHALL 4SW RAWS	MT	0.24E	0.24
SVWM8	WILLSALL 4NNE	MT	0.24E	0.24
WORM7	WORTH 4W	MO	0.24E	0.24
ADRM5	ADRIAN	MN	0.23E	0.23
BCTN1	BANCROFT, LOGAN CR	NE	0.23E	0.23
BEAK1	BEATTIE 2NNW	KS	0.23E	0.23
BELK1	BELOIT	KS	0.23	0.23
CUST022	BERWYN 4NNE	NE	0.23E	0.23
BLNK1	BLAINE	KS	0.23E	0.23
CAWK1	CAWKER CITY	KS	0.23E	0.23
CNVK1	CENTERVILLE 4SW	KS	0.23	0.23

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CHNM8	COHAGEN	MT	0.23E	0.23
0759N8	DICKINSON 2NW	ND	0.23E	0.23
DCKN8	DICKINSON EXP STN	ND	0.23	0.23
EMRN1	EMERSON	NE	0.23E	0.23
FKFK1	FRANKFORT, BLACK VERM	KS	0.23E	0.23

GOFK1	GOFF 3WSW	KS	0.23	0.23
GNTM7	GRANT CITY	MO	0.23E	0.23
HLN	HELENA AIRPORT	MT	0.23	0.23
HOON1	HOOPER	NE	0.23E	0.23
JDWM8	JORDAN 23ENE	MT	0.23E	0.23
PKRW4	KAYCEE 20W	WY	0.23E	0.23
PCMW4	MAYOWORTH, POWDER R	WY	0.23	0.23
MCCM8	MILES CITY RAWS	MT	0.23E	0.23
MICN1	MITCHELL, N PLATTE R	NE	0.23E	0.23
MOCM8	MOCCASIN 2W	MT	0.23E	0.23
MCWM8	MOCCASIN 2W AGRIMET	MT	0.23E	0.23
NWEN8	NEW ENGLAND	ND	0.23E	0.23
BCNW4	NEWCASTLE 5E	WY	0.23E	0.23
OGAS2	OGLALA 1S	SD	0.23E	0.23
PAWN1	PAWNEE CITY	NE	0.23	0.23
NEBS2	PINE RIDGE, WHITE R	SD	0.23E	0.23
PRGN1	PRAGUE	NE	0.23	0.23
RECW4	RECLUSE	WY	0.23E	0.23
SLNI1	SALMON	ID	0.23E	0.23
SVRM8	SILVER STAR	MT	0.23E	0.23
SFMS2	SUX FALLS, MAPLE ST	SD	0.23	0.23
TNSW4	TEN SLEEP 16SSE	WY	0.23E	0.23
YTNN1	YUTAN	NE	0.23E	0.23
AVCM5	AVOCA	MN	0.22E	0.22
MGLM8	BABB 10SW	MT	0.22E	0.22
BEFS2	BELLE FOURCHE RES	SD	0.22E	0.22
BGCW4	BIG GOOSE CREEK BLO	WY	0.22	0.22
BYDM8	BOYD, RED LODGE CR	MT	0.22E	0.22
BTTM8	BUTTE 8S	MT	0.22E	0.22
CYDM8	CLYDE PARK 1W	MT	0.22E	0.22
CLDK1	CLYDE, ELK CR	KS	0.22E	0.22
FSTK1	FOSTORIA 7NW	KS	0.22E	0.22
GBNM8	GIBSON 2NE	MT	0.22E	0.22
GLDK1	GLEN ELDER 2SE	KS	0.22E	0.22
HMNN1	HERMAN 4WSW	NE	0.22E	0.22
MCDM8	LANDUSKY 16SE RAWS	MT	0.22E	0.22
NEWN1	NEWCASTLE	NE	0.22E	0.22
NOFN1	NORFOLK 2N	NE	0.22E	0.22
HOLT009	PAGE	NE	0.22E	0.22
PNDW4	PINEDALE	WY	0.22E	0.22
RIDM8	RIDGEWAY 1S	MT	0.22E	0.22
SPDM8	SPRINGDALE	MT	0.22E	0.22
WTLW4	WHEATLAND 10E	WY	0.22E	0.22
YDRW4	YODER 5W	WY	0.22E	0.22
CACM8	BAKER 12NE	MT	0.21	0.21
BGRM8	BOZEMAN 12NE	MT	0.21E	0.21
BYG	BUFFALO(COUNTY ARPT)	WY	0.21	0.21
BSBM8	BUSBY	MT	0.21E	0.21

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CYDK1	CLYDE	KS	0.21E	0.21
FLMW4	FORT LARAMIE CANAL	WY	0.21	0.21
AGSM8	GIBSON DAM	MT	0.21E	0.21

GDMM8	GIBSON LAKE	MT	0.21	0.21
HYSN1	HAY SPRINGS	NE	0.21E	0.21
HYSM8	HYSHAM	MT	0.21E	0.21
INWI4	INWOOD	IA	0.21E	0.21
JRNM8	JORDAN 43ENE	MT	0.21E	0.21
LBRM7	LONG BRANCH RES	MO	0.21	0.21
PIRN1	PIERCE #1	NE	0.21	0.21
PRCN1	PIERCE 2SE	NE	0.21E	0.21
REDS2	REDIG 11NE	SD	0.21E	0.21
DERN1	SCOTTSBLUFF 2WNW	NE	0.21E	0.21
EROS2	SIOUX FALLS 14NE	SD	0.21E	0.21
VAUM8	VAUGHN 3SE, SUN R	MT	0.21E	0.21
WEBM8	WEBSTER 3E	MT	0.21E	0.21
WGTW4	WRIGHT 12W	WY	0.21E	0.21
SQPM8	ALBERTON	MT	0.20	0.20
ALSM8	ALDER 17S	MT	0.20E	0.20
BSCW4	BASE CAMP, MORAN 9NE	WY	0.20	0.20
BEAM8	BEAGLE SPRINGS	MT	0.20	0.20
BLFN8	BELFIELD 1SW	ND	0.20E	0.20
BEBN1	BENNINGTON 2NW	NE	0.20E	0.20
BGSW4	BIG SANDY OPENING	WY	0.20	0.20
BMFM8	BLOOMFIELD 5NNE	MT	0.20E	0.20
BOWN8	BOWMAN	ND	0.20E	0.20
BEKM7	BROOKFIELD	MO	0.20E	0.20
BRKM7	BROOKFIELD	MO	0.20	0.20
BRWM8	BROWNING	MT	0.20E	0.20
BOWM8	BROWNING #2	MT	0.20E	0.20
BTKM8	BURNT CREEK RAWS	MT	0.20E	0.20
BSSN1	BUSHNELL 15S	NE	0.20	0.20
CSPW4	CASPER MOUNTAIN	WY	0.20	0.20
CPCM8	COPPER CAMP	MT	0.20	0.20
CRDW4	CRANDALL CREEK	WY	0.20E	0.20
DRBM8	DARBY	MT	0.20E	0.20
ERDW4	EAST RIM DIVIDE	WY	0.20	0.20
EONK1	EASTON	KS	0.20	0.20
ESTK1	EASTON, STRANGER CR	KS	0.20E	0.20
ELLN1	ELSMERE 9ENE	NE	0.20E	0.20
GERN1	GERING 1NW	NE	0.20E	0.20
GLEM8	GLEN 2E	MT	0.20E	0.20
GRVW4	GROS VENTRE SUMMIT	WY	0.20	0.20
HMKW4	HAMS FORK	WY	0.20E	0.20
HRKM8	HARKNESS RAWS	MT	0.20E	0.20
HEBN8	HEBRON	ND	0.20E	0.20
HWPM8	HELENA WATER PLANT	MT	0.20E	0.20
INCW4	INDIAN CREEK	WY	0.20	0.20
KLLW4	KELLEY	WY	0.20	0.20
LENS2	LENNOX 3NE	SD	0.20E	0.20
LDGM8	LODGE GRASS	MT	0.20E	0.20
LOPW4	LOOMIS PARK	WY	0.20	0.20
MLRM8	MELROSE 7S	MT	0.20E	0.20

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MNOS2	MENNO	SD	0.20E 0.20

NOIM8	NOISY BASIN	MT	0.20E	0.20
NORM8	NORTHEAST ENTRANCE	MT	0.20	0.20
OTOI4	OTO	IA	0.20E	0.20
PHBW4	PHILLIPS BENCH	WY	0.20	0.20
PNNS2	PINNACLES RANGER STA	SD	0.20E	0.20
PNVS2	PLAINVIEW 6SSW	SD	0.20E	0.20
PRPM8	PORCUPINE	MT	0.20	0.20
RICN8	RICHARDTON, HEART R	ND	0.20E	0.20
SBFN1	SCOTTSBLUFF 3SW	NE	0.20	0.20
SHCM8	SHORT CREEK	MT	0.20	0.20
RSIS2	SILVER CITY 1W	SD	0.20	0.20
SKAM8	SKALKAHO SUMMIT	MT	0.20	0.20
TICW4	TIMBER CREEK	WY	0.20	0.20
TOGW4	TOGWOTEE PASS	WY	0.20	0.20
WMAK1	WASHINGTON	KS	0.20	0.20
WESN1	WESTON 3NW	NE	0.20E	0.20
WLVW4	WOLVERINE	WY	0.20	0.20
WODM8	WOOD CREEK	MT	0.20	0.20
ABSM8	ABSAROCKE	MT	0.19E	0.19
ATAW4	ALTA	WY	0.19E	0.19
ARDS2	ARDMORE 2N	SD	0.19E	0.19
NFSM8	AUGUSTA 25NW	MT	0.19E	0.19
BRDS2	BEAR RIDGE	SD	0.19E	0.19
BOCM7	BOLCKOW, 102 RIVER	MO	0.19	0.19
CRCN1	CARPENTER RANCH	NE	0.19	0.19
CRSN8	CARSON, ANTELOPE CR	ND	0.19E	0.19
COSM8	COLUMBUS	MT	0.19E	0.19
CKCM8	COOKE CITY 2W	MT	0.19E	0.19
EAGS2	EAGLE BUTTE (AMRAD)	SD	0.19E	0.19
HRTM8	HEART BUTTE	MT	0.19	0.19
HTBM8	HEART BUTTE 1NW	MT	0.19E	0.19
INBS2	INDIAN BUTTE RAWS	SD	0.19E	0.19
JAC	JACKSON HOLE AIRPORT	WY	0.19E	0.19
LNXS2	LENNOX	SD	0.19E	0.19
CEFM8	LIMA 36ENE	MT	0.19E	0.19
RJTW4	LUSK 25NE	WY	0.19E	0.19
MSO	MISSOULA SITE 1	MT	0.19	0.19
SCOT022	MITCHELL 2WNW	NE	0.19E	0.19
MOOW4	MOOSE	WY	0.19E	0.19
NRBI4	NORTHBORO	IA	0.19E	0.19
OHMN1	OMAHA	NE	0.19E	0.19
PSPN1	PONCA STATE PARK	NE	0.19E	0.19
SPCN1	SPENCER, NIOBRARA R	NE	0.19E	0.19
TAYN1	TAYLOR	NE	0.19E	0.19
TYLN1	TAYLOR	NE	0.19E	0.19
PTNW4	UPTON 14ENE	WY	0.19E	0.19
VLRM8	VALIER	MT	0.19E	0.19
VERN1	VERDEL, PONCA CR	NE	0.19E	0.19
WNEM8	WINNETT 6NNE	MT	0.19E	0.19
WRHW4	WRIGHT 16NW	WY	0.19E	0.19
WMMM8	WYOLA 11E	MT	0.19	0.19
AGNK1	AGENDA	KS	0.18E	0.19

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ALNN1	ALLEN	NE	0.18E	0.19
AMNN8	ALMONT	ND	0.18E	0.19
BLMK1	BLUE MOUND	KS	0.18E	0.19
BUFW4	BUFFALO	WY	0.18	0.19
CMNM8	CAMERON	MT	0.18E	0.19
CLLM8	CARLYLE 13NW	MT	0.18E	0.19
CLKM8	CLARK CANYON DAM	MT	0.18E	0.19
BURT002	CRAIG 6S	NE	0.18E	0.19
FRES2	FREEMAN	SD	0.18E	0.19
GARK1	GARNETT 1E	KS	0.18	0.19
GCRW4	GRASS CREEK DIVIDE	WY	0.18E	0.19
HRRN1	HARRISON 9W	NE	0.18E	0.19
HEI	HETTINGER	ND	0.18	0.19
HETN8	HETTINGER EXP STN	ND	0.18E	0.19
HSKN1	HOSKINS	NE	0.18E	0.19
KLLN8	KILLDEER	ND	0.18	0.19
LMCN1	LINCOLN 4WSW	NE	0.18	0.19
LSKW4	LUSK 2SW	WY	0.18E	0.19
MWBN1	MILLARD	NE	0.18E	0.19
MLRN1	MILLARD 2NW GDDS	NE	0.18E	0.19
OKDN1	OAKDALE	NE	0.18	0.19
POWW4	POWELL RADIO	WY	0.18E	0.19
PRYM8	PRYOR	MT	0.18E	0.19
RUSN1	RUSHVILLE	NE	0.18E	0.19
SCFN1	SCOTTSBLUFF 2NNE	NE	0.18E	0.19
SSCN1	SOUTH SIOUX CITY	NE	0.18E	0.19
BWSW4	STATE LINE WY-SD	WY	0.18E	0.19
PRMM8	WILD HORSE RAWS	MT	0.18E	0.19
BCRW4	BATES CREEK	WY	0.17E	0.17
BCHN8	BEACH 9SE	ND	0.17E	0.17
BTWM8	BELLTOWER	MT	0.17E	0.17
BRTM8	BRITTON SPRINGS	MT	0.17E	0.17
BBRW4	BUFFALO BILL ABV	WY	0.17E	0.17
CNNS2	CANTON	SD	0.17E	0.17
CNTS2	CANTON (AMRAD)	SD	0.17E	0.17
CANS2	CANTON, BIG SIOUX R	SD	0.17E	0.17
SCCS2	CHESTER, SKUNK CR	SD	0.17E	0.17
CHKM8	CHINOOK 35SE	MT	0.17E	0.17
CNYK1	COLONY	KS	0.17	0.17
CCPM7	CONCEPTION	MO	0.17E	0.17
CNK	CONCORDIA	KS	0.17	0.17
DCTN1	DECATUR, MISSOURI R	NE	0.17E	0.17
EGHM8	EAGLEHEAD	MT	0.17E	0.17
GLVI4	GALVA	IA	0.17E	0.17
HRNN1	HARRISON	NE	0.17E	0.17
ZIMN1	HARRISON 9NE	NE	0.17E	0.17
MIMN1	HARRISON 9NE	NE	0.17E	0.17
HRTW4	HARTVILLE 7NNE	WY	0.17E	0.17
HLVI4	HOLLY SPRINGS 1NW	IA	0.17	0.17
JKSN1	JACKSON	NE	0.17E	0.17
JMSK1	JAMESTOWN, BUFFALO C	KS	0.17E	0.17
NOBM8	KNOBS 4SW	MT	0.17E	0.17
LRRM8	LIMA RESERVOIR	MT	0.17E	0.17

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LLNN1	LINCOLN FIRE STA 5	NE	0.17E	0.17
MWTW4	MIDWEST	WY	0.17	0.17
MTNM8	MOULTON RESERVOIR	MT	0.17E	0.17
NFLW4	NEW FORK LAKE	WY	0.17E	0.17
NMRC2	NEW RAYMER 21N	CO	0.17E	0.17
NBDN1	NORTH BEND, PLATTE R	NE	0.17E	0.17
NEWK1	NORWAY	KS	0.17	0.17
PKCW4	POCKET CREEK SNOTEL	WY	0.17E	0.17
PCUS2	PORCUPINE	SD	0.17E	0.17
ROBM8	ROBERTS 1N	MT	0.17E	0.17
SLGW4	SHERIDAN, GOOSE CR	WY	0.17E	0.17
BRLW4	SUNDANCE 12N	WY	0.17	0.17
TGWW4	TOGWOTEE	WY	0.17E	0.17
TWF	TWIN FALLS AIRPORT	ID	0.17E	0.17
MDYM8	VAUGHN	MT	0.17E	0.17
WGSM8	WHITE SULPHUR SPRNGS	MT	0.17E	0.17
BDBM8	BRANDENBERG	MT	0.16E	0.16
BRGS2	BRIDGEWATER	SD	0.16E	0.16
BRLM7	BURLINGTON JCT 1W	MO	0.16E	0.16
CIRM8	CIRCLE	MT	0.16E	0.16
CHLI4	CLIMBING HILL	IA	0.16E	0.16
CONK1	CONCORDIA 1W	KS	0.16E	0.16
DLMM8	DELMOE RAWS	MT	0.16E	0.16
DPRS2	DUPREE 15SSE	SD	0.16E	0.16
EGNN8	ELGIN	ND	0.16E	0.16
WHSM8	ELK PEAK SNOTEL	MT	0.16E	0.16
EMSS2	ELM SPRINGS 4NW	SD	0.16E	0.16
EWIN1	EWING 1N, ELKHORN R	NE	0.16E	0.16
GRDN1	GORDON 3W	NE	0.16	0.16
HEMN1	HEMINGFORD	NE	0.16E	0.16
HMAN1	HERMAN	NE	0.16E	0.16
HUSK1	HUSCHER	KS	0.16E	0.16
KNNM5	KENNETH 3NE	MN	0.16E	0.16
KMBN1	KIMBALL 2NE	NE	0.16	0.16
BAFM8	LAME DEER 6ENE	MT	0.16	0.16
LVGM8	LIVINGSTON 12S	MT	0.16E	0.16
MSAM8	MISSOULA 2NE	MT	0.16E	0.16
NWTW4	NEWCASTLE 6SE	WY	0.16E	0.16
NWLS2	NEWELL	SD	0.16E	0.16
NCKN1	NICKERSON 3NE	NE	0.16E	0.16
PWRM8	POWER 6SE	MT	0.16E	0.16
SAVM8	SAVAGE	MT	0.16E	0.16
Y68	TRACY	MN	0.16E	0.16
VACM8	VIRGINIA CITY	MT	0.16E	0.16
WBXM8	WIBAUX 2E	MT	0.16E	0.16
JDRM8	WINIFRED, JUDITH R	MT	0.16E	0.16
ALBM8	ALBION 1N	MT	0.15E	0.16
LMRM8	ANTELOPE RAWS	MT	0.15	0.16
ARNN1	ARNOLD	NE	0.15E	0.16
AHLN1	ASHLAND	NE	0.15E	0.16
ASDN1	ASHLAND #1	NE	0.15E	0.16
ATKN1	ATKINSON 3SW	NE	0.15E	0.16
BEAN8	BEACH	ND	0.15E	0.16

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STATION				PERIOD
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SNDW4	BEULAH 2S, SAND CR	WY	0.15E	0.16
BOMN8	BOWMAN 3W	ND	0.15E	0.16
BOYN1	BOYSTOWN	NE	0.15E	0.16
BNFM8	BRENNER GDDS	MT	0.15E	0.16
FLDW4	BUFFALO 15W	WY	0.15E	0.16
BURN1	BURCHARD	NE	0.15E	0.16
CPMK1	CHAPMAN	KS	0.15	0.16
CHGW4	CHUGWATER	WY	0.15	0.16
COLM8	COLSTRIP	MT	0.15E	0.16
CUBK1	CUBA	KS	0.15E	0.16
DNSK1	DENSMORE 2N	KS	0.15	0.16
DINM8	DILLON 9SSE	MT	0.15E	0.16
DWNK1	DOWNS	KS	0.15E	0.16
DNCN8	DUNN CENTER 1E	ND	0.15	0.16
EGLM8	EAST GLACIER	MT	0.15E	0.16
GLNN8	GLEN ULLIN	ND	0.15E	0.16
GORN1	GORDON 6N	NE	0.15E	0.16
GOSN1	GROSS 1E	NE	0.15E	0.16
HRDM5	HARDWICK	MN	0.15E	0.16
CFRM8	HELENA 15E	MT	0.15E	0.16
BLCM8	INGOMAR 16NE	MT	0.15E	0.16
JUDN8	JUDSON 9SSE, HEART R	ND	0.15E	0.16
KBLN1	KIMBALL 14SSW	NE	0.15E	0.16
LFRM8	LAKE FRANCES RES	MT	0.15E	0.16
LSTI4	LESTER	IA	0.15E	0.16
LNIN1	LINCOLN FIRE STA 11	NE	0.15E	0.16
LOVK1	LOVEWELL DAM	KS	0.15E	0.16
MMON1	MALMO 3E	NE	0.15E	0.16
MKLN1	MASKELL, MISSOURI R	NE	0.15E	0.16
MCLM8	MC LEOD 12SSW	MT	0.15E	0.16
MDWN1	MEADOW GROVE	NE	0.15E	0.16
MLKN1	MURRAY LAKE	NE	0.15E	0.16
PLGN1	PILGER, ELKHORN R	NE	0.15E	0.16
BRSW4	PINEDALE 14SE	WY	0.15E	0.16
RDTN8	RICHARDTON ABBEY	ND	0.15E	0.16
SHER003	RUSHVILLE 13S	NE	0.15E	0.16
SCBN1	SCOTTSBLUFF 1E	NE	0.15E	0.16
SDNW4	SUNDANCE	WY	0.15E	0.16
TRTN8	TROTTERS, BEAVER CR	ND	0.15E	0.16
UHLN1	UEHLING	NE	0.15E	0.16
UNGN1	UEHLING	NE	0.15	0.16
UEHN1	UEHLING, LOGAN CR	NE	0.15E	0.16
WETK1	WETMORE	KS	0.15E	0.16
ALZM8	ALZADA 1SSE	MT	0.14E	0.14
ASHM8	ASHLAND RANGER STA	MT	0.14E	0.14
AURK1	AURORA	KS	0.14E	0.14
BLFS2	BELLE FOURCHE 9W	SD	0.14E	0.14
BLVK1	BELLEVILLE	KS	0.14	0.14
BGTM8	BIG TIMBER	MT	0.14E	0.14
BILM8	BILLINGS, YELLOWSTONE	MT	0.14E	0.14
BZEM8	BOZEMAN STATE UNIV	MT	0.14E	0.14



CYNM8 CANYON FERRY DAM MT 0.14E 0.14  
 CANN8 CARSON ND 0.14E 0.14  
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STATION	ID	DESCRIPTION	STATE	06/10	PERIOD SUM
	WYNT3	CASPER 4WSW	WY	0.14E	0.14
	COII4	COIN	IA	0.14E	0.14
	CTLK1	COURTLAND	KS	0.14	0.14
	RASW4	DUBOIS 22SW	WY	0.14E	0.14
	ELMS2	ELM SPRINGS 3ESE	SD	0.14	0.14
	HCHW1	HARRISBURG 10NW	NE	0.14	0.14
	HMTW4	HEART MOUNTAIN	WY	0.14E	0.14
	HOMN1	HOMER 3NE	NE	0.14E	0.14
	KILN8	KILLDEER 8NW	ND	0.14E	0.14
	KYLS2	KYLE	SD	0.14E	0.14
	LNLN1	LINCOLN FIRE STA 13	NE	0.14E	0.14
	LDGS2	LODGEPOLE 10NW	SD	0.14E	0.14
	MML	MARSHALL AIRPORT	MN	0.14E	0.14
	MDLM8	MCLEOD	MT	0.14E	0.14
	MRAW4	MORAN 5WSW	WY	0.14E	0.14
	NWCW4	NEWCASTLE	WY	0.14E	0.14
	NCLW4	NEWCASTLE	WY	0.14E	0.14
	NKRN1	NICKERSON, MAPLE CR	NE	0.14E	0.14
	LBF	NORTH PLATTE AIRPORT	NE	0.14	0.14
	OVNN1	OMAHA 9NW	NE	0.14E	0.14
	ORDN1	ORD, NORTH LOUP R	NE	0.14	0.14
	PHIW4	PHILLIPS	WY	0.14E	0.14
	PRGS2	PINE RIDGE RAWLS	SD	0.14E	0.14
	RHAN8	RHAME 8S	ND	0.14E	0.14
	ENSI4	RIVERTON, EAST NISH	IA	0.14	0.14
	SCDK1	SCANDIA	KS	0.14E	0.14
	SNDK1	SCANDIA, REPUBLICAN	KS	0.14E	0.14
	WHEE006	SPALDING 6N	NE	0.14E	0.14
	SLBW4	SUNLIGHT BASIN	WY	0.14E	0.14
	TOWM8	TOWNSEND	MT	0.14E	0.14
	TRON8	TROTTERS 3SSE	ND	0.14E	0.14
	VNDM8	VANANDA 6NE	MT	0.14E	0.14
	VEDN1	VERDIGRE, VERDIGRE CR	NE	0.14E	0.14
	WSSM8	WHITE SULPHUR SPRNGS	MT	0.14E	0.14
	ABON1	ALBION 7W	NE	0.13E	0.13
	ALTN8	ALMONT, BIG MUDDY CR	ND	0.13E	0.13
	BTMM8	BIG TIMBER 1E	MT	0.13E	0.13
	BLKI4	BLOCKTON 1W	IA	0.13	0.13
	BWNN8	BOWMAN HALEY RES	ND	0.13E	0.13
	BRJM7	BURLINGTON JUNCTION	MO	0.13E	0.13
	CSHM8	CASHE CREEK	MT	0.13E	0.13
	CPR	CASPER INTL AIRPORT	WY	0.13	0.13
	CENK1	CENTRALIA	KS	0.13E	0.13
	CLAK1	CLAY CENTER #1	KS	0.13E	0.13
	CYCK1	CLAY CENTER, REPUB R	KS	0.13E	0.13
	CLIK1	CLINTON RESERVOIR	KS	0.13	0.13
	CNKK1	CONCORDIA, REPUB R	KS	0.13	0.13
	DERS2	DELL RAPIDS 2SW	SD	0.13E	0.13
	DFTN1	DUTCH FLATS WELL	NE	0.13E	0.13

ELGN1	ELGIN	NE	0.13E	0.13
ELCS2	ELM SPRINGS, ELK CR	SD	0.13	0.13
FRON1	FORT ROBINSON	NE	0.13E	0.13
BRAM8	GEYSER 7NE RAW	MT	0.13E	0.13

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HSBN1	HARRISBURG 12WNW	NE	0.13E	0.13
HSTI4	HOLSTEIN	IA	0.13	0.13
HMRN1	HOMER, OMAHA CR	NE	0.13E	0.13
HOKI4	HORNICK, W FK DITCH	IA	0.13	0.13
HSMM8	HYSHAM 25SSE	MT	0.13E	0.13
INMK1	INMAN	KS	0.13E	0.13
LWSW4	LEWIS LAKE DIVIDE	WY	0.13E	0.13
MVEM8	MELVILLE 4W	MT	0.13E	0.13
MSP	MINNEAPOLIS	MN	0.13	0.13
MBG	MOBRIDGE	SD	0.13	0.13
MQM	MONIDA	MT	0.13E	0.13
MRLN1	MORRILL WELL	NE	0.13E	0.13
MOSM8	MOSBY 4ENE	MT	0.13E	0.13
MSBM8	MOSBY, MUSSEL RI	MT	0.13E	0.13
NLIN1	NELIGH, ELKHORN R	NE	0.13E	0.13
NRMC2	NEW RAYMER 21N	CO	0.13E	0.13
OMAN1	OMAHA STANDNG BEAR L	NE	0.13E	0.13
ONAK1	ONAGA	KS	0.13E	0.13
ZPC	PINCHER CR	AB	0.13E	0.13
PBNW4	PINE BLUFFS 10NW	WY	0.13E	0.13
RYMN1	RAYMOND 2NE	NE	0.13	0.13
RDWS2	REDWATER CREEK	SD	0.13	0.13
WNSI4	RIVERTON, WEST NISH	IA	0.13	0.13
RHKW4	ROCHELLE HILLS RAW	WY	0.13	0.13
WYSH1	SHERIDAN 1N	WY	0.13E	0.13
WYSH14	SHERIDAN 2NW	WY	0.13E	0.13
SFSW4	SHERIDAN 7NW	WY	0.13E	0.13
SIDI4	SIDNEY	IA	0.13	0.13
SDYM8	SIDNEY 1NE	MT	0.13E	0.13
SIDM8	SIDNEY 2S	MT	0.13	0.13
SDY	SIDNEY-RICHLAND AP	MT	0.13E	0.13
SUX	SIOUX CITY	IA	0.13	0.13
SREN8	STREETER 5NW	ND	0.13	0.13
STRN8	STREETER 5NW	ND	0.13E	0.13
TLRN1	TAYLOR 12NE	NE	0.13E	0.13
TORW4	TORRINGTON 2NW	WY	0.13E	0.13
WRRW4	WARREN PEAK	WY	0.13E	0.13
WDLK1	WOODLAWN 2W	KS	0.13E	0.13
DYIM8	ZORTMAN 10SW	MT	0.13E	0.13
GCAW4	ACME, GOOSE CREEK	WY	0.12E	0.13
ALYN8	ASHLEY	ND	0.12	0.13
BEFM8	AUGUSTA 21WSW	MT	0.12	0.13
BTLS2	BATESLAND	SD	0.12E	0.13
BEYM7	BETHANY, E FK BIG CR	MO	0.12	0.13
BIRM8	BIRNEY	MT	0.12E	0.13
BRHN1	BRAINARD	NE	0.12E	0.13
BRIM8	BRIDGER 5SE	MT	0.12E	0.13

SBFM8	BRIDGER 9SE	MT	0.12	0.13
BNSI4	BRONSON	IA	0.12E	0.13
BWXW4	BUFFALO BILL RES	WY	0.12E	0.13
BTM	BUTTE FAA AIRPORT	MT	0.12	0.13
CSWW4	CASPER 1SW	WY	0.12E	0.13
CWWW4	CASPER WATER PLANT	WY	0.12E	0.13

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CPRW4	CASPER, NO PLATTE R	WY	0.12	0.13
CHPK1	CHAPMAN, CHAPMAN CR	KS	0.12E	0.13
COLF003	CLARKSON 8SSW	NE	0.12E	0.13
CCRK1	CLAY CENTER	KS	0.12	0.13
WYSH10	CLEARMONT 5NNE	WY	0.12E	0.13
SFOW4	CODY 19SW	WY	0.12E	0.13
CORW4	CORA	WY	0.12E	0.13
CRSN1	CRESTON	NE	0.12E	0.13
DELS2	DELL RAPIDS	SD	0.12E	0.13
DTON1	DENTON 2N	NE	0.12E	0.13
DLN	DILLON AIRPORT	MT	0.12	0.13
EWDN1	ELKHORN 4SE	NE	0.12E	0.13
FAIN8	FAIRFIELD	ND	0.12E	0.13
FSYM8	FORSYTH	MT	0.12E	0.13
0063N8	GRASSY BUTTE 9SE	ND	0.12E	0.13
HDRN1	HADAR #2	NE	0.12E	0.13
HADN1	HADAR 1SE	NE	0.12E	0.13
HOBM8	HOBSON	MT	0.12E	0.13
WYCM9	HULETT 34WNW	WY	0.12E	0.13
IRHW4	IRISH ROCK	WY	0.12E	0.13
LBNM5	LAKE BENTON	MN	0.12E	0.13
MNGN8	MANNING, KNIFE R	ND	0.12	0.13
MYLM7	MARYVILLE 1E	MO	0.12E	0.13
MYVM7	MARYVILLE, 102 RIVER	MO	0.12	0.13
Y26	MOBRIDGE 2NNW	SD	0.12E	0.13
MJTW4	MORAN 5SW	WY	0.12E	0.13
NLHN1	NELIGH	NE	0.12E	0.13
NPTN1	NORTH PLATTE	NE	0.12E	0.13
PBTW4	PINE BLUFFS #2	WY	0.12E	0.13
ECRN1	PINE BLUFFS 8SE RAWS	NE	0.12E	0.13
IEN	PINE RIDGE	SD	0.12	0.13
PNES2	PINE RIDGE 2SE	SD	0.12E	0.13
GREE007	SPALDING	NE	0.12E	0.13
DKRM8	TONGUE RIVER DAM	MT	0.12E	0.13
WHON1	WAHOO	NE	0.12E	0.13
WLTN1	WALTHILL 1E	NE	0.12	0.13
WHLN1	WALTHILL, S OMAHA CR	NE	0.12E	0.13
WGHW4	WRIGHT 12E	WY	0.12E	0.13
ALBW4	ALBIN	WY	0.11E	0.12
ABNW4	ALBIN #2	WY	0.11E	0.12
ADRM8	ALDER 19S	MT	0.11E	0.12
BEDI4	BEDFORD	IA	0.11	0.12
BSFM8	BILLINGS RAWS	MT	0.11E	0.12
BWSM8	BOZEMAN 4W AGRIMET	MT	0.11E	0.12
BNLN1	BROWNLEE	NE	0.11E	0.12

CETS2	CENTERVILLE 4N	SD	0.11E	0.12
CHLM7	CHILLICOTHE	MO	0.11	0.12
COYW4	CODY 21SW	WY	0.11E	0.12
DECM8	DECKER	MT	0.11E	0.12
DSLM8	DECKER 2SE	MT	0.11E	0.12
DRHN8	DICKINSON RANCH HQ	ND	0.11E	0.12
DLLM8	DILLON (UM WESTERN)	MT	0.11E	0.12
EKIM8	EKALAKA 7SE	MT	0.11E	0.12

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GRMM7	GRAHAM	MO	0.11E	0.12
GRZM7	GRAHAM, NODAWAY R	MO	0.11E	0.12
HLIN8	HALLIDAY	ND	0.11E	0.12
HRSK1	HARRIS 3SSW	KS	0.11E	0.12
TCHN8	HEART R ABV TSCHIDA	ND	0.11E	0.12
HMG11	HEMINGFORD 10SW	NE	0.11E	0.12
HLBK1	HILLSBORO	KS	0.11	0.12
INTS2	INTERIOR 3NE	SD	0.11E	0.12
IRRS2	INTERIOR, WHITE R	SD	0.11	0.12
KDKS2	KADOKA 6S, WHITE R	SD	0.11	0.12
KFFC2	KAUFFMAN 4SSE	CO	0.11E	0.12
FORN1	KIMBALL 15NE RAWS	NE	0.11E	0.12
LBNK1	LEBANON	KS	0.11	0.12
LICN1	LINCOLN, LTL SALT CR	NE	0.11	0.12
MRMN8	MARMARTH	ND	0.11E	0.12
MENM8	MENARD 3NE	MT	0.11E	0.12
MTAI4	MOUNT AYR	IA	0.11E	0.12
HRAN8	NEW HRADEC, GREEN R	ND	0.11E	0.12
NWLW4	NEWCASTLE 15SW	WY	0.11E	0.12
NGRN1	NEWMAN GROVE	NE	0.11E	0.12
OCNN1	OCONTO	NE	0.11E	0.12
PTCN1	PLATTE CENTER	NE	0.11E	0.12
RWYM7	RIDGEWAY	MO	0.11	0.12
BFF	SCOTTSBLUFF	NE	0.11	0.12
SHBW4	SHERIDAN, GOOSE CR	WY	0.11	0.12
SBCM8	SILVER GATE 2WSW	MT	0.11	0.12
SILM8	SILVER RUN	MT	0.11E	0.12
SXGI4	SIOUX CITY	IA	0.11	0.12
0929N8	STREETER 2W	ND	0.11E	0.12
SWLM8	SWAN LAKE	MT	0.11E	0.12
TOR	TORRINGTON	WY	0.11	0.12
TYLM5	TYLER	MN	0.11E	0.12
WKAS2	WAKONDA, VERMILLION	SD	0.11E	0.12
WSTW4	WESTON 15N	WY	0.11E	0.12
WTTM8	WINNETT	MT	0.11E	0.12
DDNW4	ALADDIN 6NW	WY	0.10E	0.11
AMDN8	AMIDON 12NW	ND	0.10E	0.11
BCKN1	BATTLE CREEK	NE	0.10E	0.11
BLTM8	BEARTOOTH LAKE	MT	0.10	0.11
BLBM8	BLACK BEAR	MT	0.10	0.11
BBSW4	BLIND BULL SUMMIT	WY	0.10	0.11
BZLM8	BOZEMAN 5W	MT	0.10E	0.11
BRCW4	BURROUGHS CREEK	WY	0.10	0.11

CARM8	CARDWELL	MT	0.10E	0.11
CARS2	CARTHAGE	SD	0.10	0.11
CENS2	CENTERVILLE 6SE	SD	0.10E	0.11
WYLM22	CHEYENNE 5NE	WY	0.10	0.11
GRAW4	CHEYENNE 7NE	WY	0.10E	0.11
POCW4	CLARK 20WSW	WY	0.10E	0.11
RATW4	CODY 12WNW	WY	0.10	0.11
OLU	COLUMBUS	NE	0.10E	0.11
COPM8	COPPER BOTTOM	MT	0.10	0.11
CSBM7	COSBY 2W	MO	0.10	0.11

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CWDS2	COTTONWOOD 2E	SD	0.10E	0.11
DEVW4	DEAVER	WY	0.10E	0.11
DUBN1	DUBOIS	NE	0.10E	0.11
DUNN1	DUNBAR 4N	NE	0.10E	0.11
BHCM7	EXCELLO 3WSW	MO	0.10E	0.11
FTCC2	FORT COLLINS 9NW	CO	0.10	0.11
GRCW4	GRANITE CREEK	WY	0.10	0.11
GRNM8	GRANT 5SE	MT	0.10E	0.11
GVSW4	GRAVE SPRINGS	WY	0.10	0.11
GREN1	GREELEY	NE	0.10	0.11
GVRC2	GROVER	CO	0.10E	0.11
HADK1	HADDAM	KS	0.10E	0.11
HWKM5	HARDWICK 2NW	MN	0.10E	0.11
HBRM8	HEBGEN LAKE RAWS	MT	0.10E	0.11
HORI4	HORNICK 5S	IA	0.10E	0.11
HYTW4	HOYT PEAK	WY	0.10E	0.11
ISAS2	ISABEL	SD	0.10E	0.11
KNDW4	KENDALL	WY	0.10	0.11
MTNW4	KINNEAR 9WNW	WY	0.10E	0.11
LAGW4	LA GRANGE	WY	0.10E	0.11
LANK1	LANE	KS	0.10	0.11
LNEK1	LANE, POTTAWATOMIE C	KS	0.10E	0.11
LRKN8	LARK 10N, HEART R	ND	0.10E	0.11
LCKM8	LICK CREEK	MT	0.10	0.11
LSCN1	LINCOLN 7NW, SALT CR	NE	0.10	0.11
MADM8	MADISON DAM BLO	MT	0.10E	0.11
MPLM8	MADISON PLATEAU	MT	0.10	0.11
MESN8	MANDAN EXP STATION	ND	0.10E	0.11
MTHN8	MARMARTH	ND	0.10E	0.11
MCPK1	MCPHERSON	KS	0.10E	0.11
MEDN8	MEDINA	ND	0.10E	0.11
MLTK1	MILTONVALE	KS	0.10	0.11
MDAN1	MINATARE DAM	NE	0.10	0.11
MNTN1	MINATARE, NO PLATTE	NE	0.10E	0.11
MRCW4	MOORCROFT 7W	WY	0.10E	0.11
MSPM8	MOSS PEAK	MT	0.10	0.11
NPLN1	NO PLATTE EXP FARM	NE	0.10	0.11
NFLN1	NORFOLK 4W	NE	0.10	0.11
NRLN1	NORTH LOUP	NE	0.10E	0.11
OLFW4	OLD FAITHFUL	WY	0.10E	0.11
OSGW4	OSAGE	WY	0.10E	0.11

CLSW4	PAHASKA, CRECELIUS C	WY	0.10E	0.11
PRKW4	PARKER PEAK	WY	0.10	0.11
PKSS2	PICKSTOWN	SD	0.10	0.11
PKS	PICKSTOWN	SD	0.10E	0.11
RESC2	RABBIT EARS	CO	0.10	0.11
REDM8	RED LODGE 6SSW	MT	0.10E	0.11
BRNW4	RIVERTON 21NW	WY	0.10E	0.11
RIW	RIVERTON AIRPORT	WY	0.10	0.11
SRSW4	SANDSTONE	WY	0.10	0.11
WCRN1	SCOTTSBLUFF 10NE	NE	0.10E	0.11
FSHS2	SHADEHILL RESERVOIR	SD	0.10E	0.11
SDHI4	SHENANDOAH	IA	0.10	0.11

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SKDM7	SKIDMORE	MO	0.10E	0.11
SNKW4	SNAKE RIVER	WY	0.10	0.11
SKRW4	SNAKE RIVER STATION	WY	0.10	0.11
SPLW4	SPLIT ROCK CREEK	WY	0.10	0.11
STAM8	STAHL PEAK	MT	0.10	0.11
STBM7	STANBERRY	MO	0.10E	0.11
STTM8	STUART MOUNTAIN	MT	0.10	0.11
SYLW4	SYLVAN LAKE	WY	0.10	0.11
SYRW4	SYLVAN ROAD	WY	0.10	0.11
TLRN8	TAYLOR 7NNW	ND	0.10E	0.11
TPEM8	TEPEE CREEK	MT	0.10	0.11
THUW4	THUMB DIVIDE	WY	0.10	0.11
TCTM8	TIMBERCREST RAWS	MT	0.10	0.11
WYGS2	TORRINGTON 5SSW	WY	0.10E	0.11
TOWC2	TOWER	CO	0.10	0.11
MTTK1	TUTTLE CREEK DAM	KS	0.10	0.11
TOPW4	TWO OCEAN PLATEAU	WY	0.10	0.11
HRSS2	VALE 3NE, HORSE CR	SD	0.10E	0.11
VLRW4	VALLEY 9NNE	WY	0.10E	0.11
AXTM8	VIRGINIA CITY 15SE	MT	0.10E	0.11
WYS	WEST YELLOWSTONE	MT	0.10E	0.11
WYSM8	WEST YELLOWSTONE	MT	0.10	0.11
MDSM8	WEST YELLOWSTONE 2E	MT	0.10E	0.11
LPTW4	WESTON, LTL POWDER R	WY	0.10E	0.11
WSKM8	WHISKEY CREEK	MT	0.10	0.11
WITS2	WHITE LAKE	SD	0.10	0.11
WTES2	WHITE LAKE (SDSU)	SD	0.10E	0.11
WCRM8	WICKED CREEK RAWS	MT	0.10E	0.11
WYGM8	YELLOWSTONE GATEWAY	MT	0.10E	0.11
ZRTM8	ZORTMAN	MT	0.10E	0.11
ALDM8	ZORTMAN MINE RAWS	MT	0.10	0.11
AMIN8	AMIDON	ND	0.09E	0.10
FHFM8	ASHLAND 12SSE	MT	0.09	0.10
CCAS2	AVON 6SW	SD	0.09E	0.10
BMKN8	BISMARCK 5NNW	ND	0.09	0.10
BIS	BISMARCK AIRPORT	ND	0.09	0.10
HCKN8	BISMARCK, HAY CREEK	ND	0.09E	0.10
BIWN8	BISMARCK, MISSOURI R	ND	0.09E	0.10
BZMM8	BOZEMAN 6W EXP FARM	MT	0.09E	0.10

BDGM8	BRIDGER 2N	MT	0.09E	0.10
BWRN1	BROADWATER 3WNW	NE	0.09	0.10
BRLN1	BURWELL, CALAMUS R	NE	0.09E	0.10
BUTN1	BUTTE	NE	0.09	0.10
CSRN1	CASTLE ROCK	NE	0.09E	0.10
CSLS2	CASTLEWOOD	SD	0.09E	0.10
CSWS2	CASTLEWOOD,BIG SIOUX	SD	0.09	0.10
CLBN1	COLUMBUS, SHELL CR	NE	0.09E	0.10
CRDM8	CONRAD	MT	0.09E	0.10
SO1	CONRAD	MT	0.09E	0.10
CTTS2	COTTONWOOD, SF BAD R	SD	0.09	0.10
COUW4	COULTER CREEK	WY	0.09E	0.10
CRWN1	CRAWFORD	NE	0.09E	0.10
DVSS2	DAVIS, VERMILLION R	SD	0.09E	0.10

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ID	DESCRIPTION	STATE	06/10	SUM
DENM8	DENTON 1NNE	MT	0.09E	0.10
TOFW4	DUBOIS 41NNW	WY	0.09E	0.10
EKLM8	EKALAKA	MT	0.09E	0.10
EMDN1	EMERALD 1W	NE	0.09E	0.10
FLAS2	FLANDREAU	SD	0.09E	0.10
FLTM8	FLATWILLOW 4ENE	MT	0.09E	0.10
GBSM8	GIBSON 4SW	MT	0.09E	0.10
GLHS2	GLENHAM	SD	0.09E	0.10
GRBN8	GRASSY BUTTE 2ENE	ND	0.09E	0.10
HBLN1	HUMBOLDT	NE	0.09E	0.10
HUT	HUTCHISON AIRPORT	KS	0.09	0.10
KDAS2	KADOKA	SD	0.09E	0.10
SPW4	KEARNY 12WSW	WY	0.09	0.10
KLDS2	KELDRON 22SSW	SD	0.09E	0.10
WYGS16	LA GRANGE 4ESE	WY	0.09	0.10
LNK	LINCOLN	NE	0.09	0.10
LHBN1	LINCOLN, HAINES BR	NE	0.09E	0.10
LGPS2	LODGEPOLE 5SW	SD	0.09E	0.10
LSTW4	LOST CREEK	WY	0.09E	0.10
MDNN8	MANDAN 3W, HEART R	ND	0.09E	0.10
MCGN1	MCGREW 4WNW	NE	0.09E	0.10
NPAN1	NORTH PLATTE 10S	NE	0.09E	0.10
ORCN1	ORCHARD 1NW	NE	0.09E	0.10
PTRK1	POTTER, STRANGER CR	KS	0.09	0.10
PRSW4	POWDER RIVER SCHOOL	WY	0.09E	0.10
POWM8	POWDERVILLE 8NNE	MT	0.09E	0.10
RWF	REDWOOD FALLS	MN	0.09	0.10
RDRN8	REEDER	ND	0.09E	0.10
RPTM8	REEDPOINT	MT	0.09E	0.10
SHSM8	SHONKIN 7S	MT	0.09E	0.10
LINC027	STAPLETON 8SSE	NE	0.09E	0.10
0392N8	STREETER 5S	ND	0.09E	0.10
SNRM8	SUN RIVER 4S	MT	0.09E	0.10
SDCW4	SUNDANCE 8NNW	WY	0.09E	0.10
WAPW4	WAPITI 1NE	WY	0.09E	0.10
WEY	WEST YELLOWSTONE	MT	0.09E	0.10
WMLK1	WESTMORELAND	KS	0.09E	0.10

WTWS2	WHITEWOOD 1S	SD	0.09E	0.10
WDBK1	WOODBINE, LYONS CR	KS	0.09E	0.10
ALTS2	ALCESTER	SD	0.08E	0.09
AHRW4	ARCHER	WY	0.08E	0.09
PISM8	AUGUSTA 20NNW	MT	0.08E	0.09
BCNI4	BEACONSFIELD	IA	0.08	0.09
BONS2	BONESTEEL	SD	0.08E	0.09
BLBW4	BUFFALO BILL DAM	WY	0.08E	0.09
COLS2	COLTON	SD	0.08E	0.09
CMBS2	COLUMBIA 1S, JAMES R	SD	0.08E	0.09
CLBS2	COLUMBIA 1W	SD	0.08	0.09
COLN1	COLUMBUS 3NE	NE	0.08E	0.09
CNTM8	CONTENT 3SSE	MT	0.08E	0.09
DVDN1	DAVID CITY	NE	0.08	0.09
DESK1	DE SOTO	KS	0.08	0.09
DENN1	DENTON 4E	NE	0.08E	0.09

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DUMK1	DURHAM	KS	0.08E	0.09
FAXS2	FAIRFAX #2	SD	0.08E	0.09
GNTM8	GRANT	MT	0.08E	0.09
UMHM8	HARLOWTON 5W	MT	0.08E	0.09
HOLK1	HOLTON, SOLDIER CR	KS	0.08E	0.09
INNK1	INMAN	KS	0.08E	0.09
JUCK1	JUNCTION CITY 4SSW	KS	0.08E	0.09
LAWK1	LAWRENCE, WAKARUSA R	KS	0.08	0.09
LION1	LINCOLN FIRE STA 2	NE	0.08E	0.09
LBNB1	LINCOLN FIRE STA 3	NE	0.08E	0.09
LBHM8	LITTLE BIG HORN RAWS	MT	0.08E	0.09
MNTK1	MANHATTAN 4N	KS	0.08	0.09
MHLN8	MARSHALL, KNIFE R	ND	0.08E	0.09
MASN1	MASON CITY	NE	0.08E	0.09
MONN8	MONTPELIER	ND	0.08	0.09
MONS2	MONTROSE	SD	0.08E	0.09
MDCK1	MOUND CITY	KS	0.08E	0.09
NPCN1	NORTHPORT CANAL	NE	0.08E	0.09
OFAW4	OLD FAITHFUL	WY	0.08E	0.09
ONGK1	ONAGA 12 SSW	KS	0.08E	0.09
ONAI4	ONAWA	IA	0.08	0.09
ODX	ORD	NE	0.08	0.09
PRKM8	PARK CITY 1NE	MT	0.08E	0.09
PVLW4	PAVILLION	WY	0.08E	0.09
PRVW4	POWDER RIVER #2	WY	0.08E	0.09
REGN8	REGENT, CANNONBALL R	ND	0.08E	0.09
RNOW4	RENO JUNCTION	WY	0.08E	0.09
SPPM8	SAPPINGTON HWY BR	MT	0.08E	0.09
SIPK1	SCIPIO, POTTAWATOMIE	KS	0.08	0.09
SHAS2	SHADEHILL RESERVOIR	SD	0.08E	0.09
SPDN1	SPALDING 5S, CEDAR R	NE	0.08E	0.09
0517N8	ST ANTHONY 7NE	ND	0.08E	0.09
SBTC2	STEAMBOAT SPRINGS	CO	0.08E	0.09
THRW4	THOROFARE	WY	0.08E	0.09
TLKS2	TIMBER LAKE	SD	0.08E	0.09



TYRN1	TRYON 15NW	NE	0.08E	0.09
DUPM8	VALIER, DUPUYER CR	MT	0.08E	0.09
VPRN1	VALPARAISO	NE	0.08E	0.09
BERS2	WANBLEE 9WSW	SD	0.08E	0.09
WVRN1	WAVERLY	NE	0.08E	0.09
WLFN1	WELLFLEET	NE	0.08E	0.09
WEYM8	WEST YELLOWSTONE 9NW	MT	0.08E	0.09
WHIS2	WHITEHORSE, MOREAU R	SD	0.08E	0.09
WHKN8	WISHEK	ND	0.08E	0.09
WLHN1	WOLBACH	NE	0.08	0.09
EYPW4	YELLOWSTONE NP EAST	WY	0.08E	0.09
ABLK1	ABILENE	KS	0.07E	0.08
AGRN1	ANGORA 1WNW	NE	0.07E	0.08
ASHI1	ASHTON	ID	0.07E	0.08
BTW4	BATTLE MOUNTAIN	WY	0.07E	0.08
MORR013	BAYARD 6SE	NE	0.07E	0.08
BRAN1	BRADY 1S	NE	0.07E	0.08
BDYN1	BRADY, PLATTE R	NE	0.07E	0.08

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BRPN1	BRIDGEPORT	NE	0.07E	0.08
BGPN1	BRIDGEPORT, N PLATTE	NE	0.07E	0.08
BDWN1	BROADWATER 4SSW	NE	0.07E	0.08
BTPS2	BUFFALO TRADING POST	SD	0.07E	0.08
BURK1	BURR OAK, WHITE ROCK	KS	0.07E	0.08
BWLN1	BURWELL	NE	0.07E	0.08
BSHN1	BUSHNELL, LODGEPOLE	NE	0.07E	0.08
CAMM7	CAMERON	MO	0.07	0.08
CMRN1	CAMERON 20NE	NE	0.07	0.08
CARW4	CARPENTER 3N	WY	0.07E	0.08
CRLK1	CIRCLEVILLE 7SW	KS	0.07E	0.08
CLAW4	CLARK 3NE	WY	0.07E	0.08
DTWN1	DALTON 13W	NE	0.07E	0.08
DRLC2	DRY LAKE	CO	0.07E	0.08
DNCN1	DUNCAN 2S, PLATTE R	NE	0.07E	0.08
DURK1	DURHAM	KS	0.07E	0.08
EGNS2	EGAN	SD	0.07E	0.08
SEKS2	ELKTON	SD	0.07E	0.08
ERLN1	EMERALD 2NW	NE	0.07E	0.08
COB0141	ESTES PARK 11SE	CO	0.07	0.08
LLKS2	EUREKA 13NE RAWS	SD	0.07E	0.08
0388N8	GACKLE 11S	ND	0.07E	0.08
GPI	GLACIER PARK AIRPORT	MT	0.07	0.08
GLCS2	GLENCROSS	SD	0.07E	0.08
HBGK1	HOLLENBERG, LTL BLUE	KS	0.07E	0.08
HLTK1	HOLTON	KS	0.07	0.08
HYAN1	HYANNIS	NE	0.07E	0.08
ILIM8	ILIAD	MT	0.07E	0.08
KENI4	KENNEBEC, LTL SIOUX	IA	0.07	0.08
LCRW4	LARSEN CREEK SNOTEL	WY	0.07E	0.08
LDRI1	LEADORE	ID	0.07E	0.08
0429N8	LEHR 4S	ND	0.07E	0.08
LNGN1	LINCOLN FIRE STA 9	NE	0.07E	0.08

MDAN8	MEDORA, LTL MISSOURI	ND	0.07E	0.08
MNKN8	MENOKEN 2WNW	ND	0.07E	0.08
BGOS2	MILESVILLE 9N	SD	0.07E	0.08
MOLM8	MOLT 6SW	MT	0.07E	0.08
NEOK1	NEOSHA RAPIDS	KS	0.07E	0.08
NRPK1	NEOSHO RAPIDS	KS	0.07E	0.08
OSKK1	OSKALOOSA 4NE	KS	0.07E	0.08
PBFW4	PINE BLUFFS 5W	WY	0.07E	0.08
PTRN1	POTTER	NE	0.07E	0.08
RLHN8	RALEIGH, CANNONBALL	ND	0.07E	0.08
ROSN1	ROSE 10WNW	NE	0.07E	0.08
RSDM7	ROSENDALE, 102 RIVER	MO	0.07	0.08
RYLN1	ROYAL	NE	0.07E	0.08
LVSS2	SALEM 5NE	SD	0.07	0.08
SLMS2	SALEM 5NE	SD	0.07E	0.08
SAVM7	SAVANNAH 1S	MO	0.07E	0.08
SHIN8	SHIELDS	ND	0.07E	0.08
SSHW4	SHOSHONI	WY	0.07E	0.08
SONM8	SONNETTE 2WNW	MT	0.07E	0.08
ANDW4	SOUTH PASS CITY 8WSW	WY	0.07E	0.08

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SOAM7	ST JOE RIPLEY (1)	MO	0.07E	0.08
TEDC2	TEDS PLACE	CO	0.07E	0.08
GURMB	TONGANOXIE 3NE	KS	0.07E	0.08
TNGK1	TONGANOXIE 4E	KS	0.07E	0.08
0423N8	VENTURA 4NW	ND	0.07E	0.08
WKEK1	WAKEFIELD 4W	KS	0.07	0.08
WSYM8	WEST YELLOWSTONE	MT	0.07E	0.08
WNTM8	WINNETT 8ESE	MT	0.07E	0.08
WISN8	WISHEK 6W	ND	0.07E	0.08
WORK1	WORDEN	KS	0.07E	0.08
AVNS2	AVON	SD	0.06E	0.06
BARK1	BARNES	KS	0.06E	0.06
BDFI4	BEDFORD, E FK 102 R	IA	0.06	0.06
COLR252	BELLVUE 1NW	CO	0.06E	0.06
BGWN1	BRIDGEPORT 18WSW	NE	0.06E	0.06
BRON1	BROWNVILLE	NE	0.06E	0.06
BKMC2	BUCKHORN MOUNTAIN 1E	CO	0.06E	0.06
CNSM7	CAINSVILLE	MO	0.06	0.06
CLKN1	CLARKSON	NE	0.06E	0.06
CLRN1	CLEARWATER, CLRWTR	NE	0.06E	0.06
DSOK1	DESOTO, KANSAS R	KS	0.06E	0.06
OTOE008	EAGLE 4S	NE	0.06E	0.06
EBSS2	EAGLE BUTTE, CHEYENNE	SD	0.06E	0.06
ELRN1	ELLSWORTH 24NNE	NE	0.06E	0.06
EMMK1	EMMETT	KS	0.06E	0.06
PONS2	ESTELLINE 7W	SD	0.06E	0.06
GFWM8	FAIRFIELD 8NE	MT	0.06E	0.06
FSNW4	FARSON 5N	WY	0.06E	0.06
FTBM8	FORT BENTON	MT	0.06E	0.06
FTPS2	FT PIERRE 3S, BAD R	SD	0.06E	0.06
KIGM8	GLASGOW 33SW	MT	0.06	0.06

GLNW4	GLENROCK, N PLATTE R	WY	0.06E	0.06
CUST004	GOTHENBURG 15NNW	NE	0.06E	0.06
CUST020	GOTHENBURG 24N	NE	0.06E	0.06
HDNM8	HARDIN	MT	0.06E	0.06
HRDM8	HARDIN 3E	MT	0.06E	0.06
BRRN1	HARRISBURG 15SW RAW	NE	0.06E	0.06
ABNN1	HARRISBURG 19SW	NE	0.06E	0.06
HERN1	HERSHEY 5SSE	NE	0.06E	0.06
LINC004	HERSHEY 6NW	NE	0.06E	0.06
HWDM8	HIGHWOOD 7NE	MT	0.06E	0.06
HOWS2	HOWARD	SD	0.06E	0.06
HWS2	HOWARD 8SE	SD	0.06E	0.06
HUBN1	HUBBELL	NE	0.06E	0.06
HNTK1	HUNTER	KS	0.06E	0.06
JOLM8	JOLIET	MT	0.06	0.06
KMBS2	KIMBALL 11SSE	SD	0.06E	0.06
KGCM7	KING CITY	MO	0.06E	0.06
LEBK1	LEBO	KS	0.06E	0.06
LUSN1	LINCOLN 3S, SALT C	NE	0.06	0.06
LNHN1	LINCOLN FIRE STA 10	NE	0.06E	0.06
LNFN1	LINCOLN FIRE STA 8	NE	0.06E	0.06
LCNN1	LINCOLN, SALT CR	NE	0.06E	0.06

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LTHN8	LITCHVILLE 2NW	ND	0.06E	0.06
LNGM8	LOGAN 2W	MT	0.06E	0.06
LGFK1	LONGFORD	KS	0.06E	0.06
NWDW4	LOST CABIN 19NE	WY	0.06E	0.06
MBRM8	MAIN BOULDER RAW	MT	0.06E	0.06
MANN8	MANDAN, MISSOURI R	ND	0.06E	0.06
MHTK1	MANHATTAN	KS	0.06	0.06
MHKK1	MANHATTAN, KANSAS R	KS	0.06E	0.06
MODK1	MOUND CITY 1SSW	KS	0.06E	0.06
NWSN8	NEW SALEM 5NW	ND	0.06E	0.06
NRTK1	NORTON 9SSE	KS	0.06E	0.06
OHAN1	OMAHA, BIG PAPIILLION	NE	0.06E	0.06
OCN1	ORCHARD 9NNE	NE	0.06E	0.06
PHLS2	PHILLIP 1S	SD	0.06E	0.06
PHMS2	PIERRE	SD	0.06E	0.06
PIR	PIERRE REGIONAL AP	SD	0.06	0.06
PLKS2	PLANKINTON	SD	0.06E	0.06
PCRW4	POKER CREEK RAW	WY	0.06	0.06
PFSW4	POWELL FIELD STATION	WY	0.06E	0.06
RLGN8	RALEIGH, CEDAR CR	ND	0.06E	0.06
RNHW4	RENO HILL	WY	0.06E	0.06
ALRM8	RUBY DAM	MT	0.06E	0.06
SRGN1	SARGENT	NE	0.06E	0.06
CHEY037	SIDNEY 14WSW	NE	0.06E	0.06
SMCK1	SMITH CENTER	KS	0.06	0.06
SBLW4	SODA BUTTE CREEK	WY	0.06E	0.06
SFKW4	SOUTH FORK	WY	0.06E	0.06
SOWN1	SOWDERS RANCH	NE	0.06E	0.06
SNZM7	SUMNER 2SW, GRAND R	MO	0.06E	0.06

LINC036	SUTHERLAND 1N	NE	0.06E	0.06
LINC033	SUTHERLAND 1NW	NE	0.06E	0.06
TABM8	TABLE MOUNTAIN	MT	0.06E	0.06
TSTM8	TOSTON 5NW AGRIMET	MT	0.06	0.06
TOSM8	TOSTON, MISSOURI R	MT	0.06E	0.06
TRIM8	TRIDENT	MT	0.06E	0.06
UNTK1	UNIONTOWN	KS	0.06E	0.06
VRFN1	VALENTINE 27SSE RAWS	NE	0.06E	0.06
WAKS2	WAKPALA	SD	0.06E	0.06
WALK1	WALNUT 2NNE	KS	0.06E	0.06
WATN8	WATFORD CITY 14S	ND	0.06E	0.06
WBSW4	WEBBER SPRINGS	WY	0.06E	0.06
SMCW4	WHEATLAND 20SW	WY	0.06E	0.06
ADRN8	ADRIAN	ND	0.05E	0.05
ALCS2	ALCESTER	SD	0.05E	0.05
SALS2	ALCESTER	SD	0.05E	0.05
ALCN1	ALLIANCE 8SSW	NE	0.05	0.05
BOCM8	AUGUSTA 7NE	MT	0.05E	0.05
BAGW4	BAGGS	WY	0.05E	0.05
0134N8	BALDWIN 1W	ND	0.05E	0.05
MORR003	BAYARD 14NNE	NE	0.05E	0.05
KSMC2	BELOIT 8ESE	KS	0.05E	0.05
BERK1	BERRYTON	KS	0.05E	0.05
BISN8	BISMARCK 7N	ND	0.05E	0.05

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SYBW4	BOSLER 21NE	WY	0.05E	0.05
BXCW4	BOXELDER, BOXELDER C	WY	0.05E	0.05
SBDW4	BOYSEN DAM	WY	0.05	0.05
BOYW4	BOYSEN RESERVOIR	WY	0.05E	0.05
CDYW4	BUFFALO BILL DAM	WY	0.05E	0.05
BUFC2	BUFFALO PARK	CO	0.05E	0.05
CWYN1	CALLAWAY 8WSW	NE	0.05	0.05
CMRM7	CAMERON 4NW	MO	0.05E	0.05
COUM8	CHOTEAU	MT	0.05E	0.05
CCL	CIRCLE 17NNW	MT	0.05E	0.05
CYTS2	CLAYTON, WOLF CR	SD	0.05E	0.05
OBAW4	CODY 12SE	WY	0.05E	0.05
COOW4	CODY 5SE	WY	0.05E	0.05
COLC2	COLUMBINE LODGE	CO	0.05E	0.05
CTB	CUT BANK AIRPORT	MT	0.05E	0.05
DSMS2	DE SMET	SD	0.05E	0.05
DVDW4	DIVIDE PEAK	WY	0.05E	0.05
DTNM8	DUTTON 9NE	MT	0.05E	0.05
EGLW4	EAGLE	WY	0.05E	0.05
1950N8	ELGIN	ND	0.05E	0.05
EKHM8	ELKHORN RAWS	MT	0.05	0.05
ELMM8	ENNIS LAKE	MT	0.05E	0.05
ETPK1	ENTERPRISE	KS	0.05	0.05
ENTK1	ENTERPRISE	KS	0.05E	0.05
ECSN1	ERICSON 8WNW	NE	0.05	0.05
EWSN1	EWING, S ELKHORN	NE	0.05E	0.05
GAKN8	GARRISON ABV SKUNK	ND	0.05E	0.05

NUCK014	GUIDE ROCK 8ESE	NE	0.05E	0.05
HARK1	HARLAN	KS	0.05E	0.05
HLMM8	HARLEM 20S	MT	0.05E	0.05
HBGN1	HARRISBURG 4SSW	NE	0.05	0.05
HSNS2	HARRISON 4W	SD	0.05E	0.05
HULW4	HULETT	WY	0.05E	0.05
PINS2	INTERIOR 15SW RAWS	SD	0.05E	0.05
ISBS2	ISABEL 14NNE	SD	0.05E	0.05
ISWI1	ISLAND PARK	ID	0.05E	0.05
ISPI1	ISLAND PARK 9ENE	ID	0.05E	0.05
ITHN1	ITHACA, WAHOO CR	NE	0.05E	0.05
KNEN8	KEENE 3S	ND	0.05E	0.05
KIMS2	KIMBALL (AMRAD)	SD	0.05E	0.05
RBYM8	LAURIN 2SW	MT	0.05E	0.05
LARK1	LAWRENCE	KS	0.05E	0.05
LNCN1	LINCOLN 4SE	NE	0.05E	0.05
LNDN1	LINCOLN FIRE STA 6	NE	0.05E	0.05
LONK1	LOGAN	KS	0.05	0.05
LOUK1	LOUISVILLE 5NE	KS	0.05E	0.05
LYNC2	LYNX PASS	CO	0.05E	0.05
MDDN1	MADRID	NE	0.05	0.05
WYNB9	MANVILLE 13SSW	WY	0.05E	0.05
MERN1	MERRIMAN	NE	0.05E	0.05
MIDS2	MIDLAND, BAD R	SD	0.05	0.05
MMLN1	MILLER	NE	0.05E	0.05
MRDS2	MISSION RIDGE 5NW	SD	0.05E	0.05

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MATN8	MOTT 1N	ND	0.05E	0.05
PIES2	OAHE DAM	SD	0.05E	0.05
PAHW4	PAHASKA, NF SHOSHONE	WY	0.05E	0.05
NFKW4	PAHASKA, SHOSHONE R	WY	0.05	0.05
P05	PHILIP 3E	SD	0.05E	0.05
PHP	PHILLIP	SD	0.05	0.05
PIRS2	PIERRE	SD	0.05E	0.05
PCPS2	PLATTE 8SW, PLATTE C	SD	0.05E	0.05
PTIK1	PORTIS, NF SOLOMON R	KS	0.05E	0.05
PTRN8	PRETTY ROCK	ND	0.05E	0.05
NOVC2	RAYMER 2N	CO	0.05E	0.05
RAYN1	RAYMOND 4W	NE	0.05E	0.05
RXE	REXBURG AIRPORT	ID	0.05	0.05
SGBW4	SAGE CREEK BASIN	WY	0.05E	0.05
SPKW4	SCHOOLHOUSE PARK	WY	0.05	0.05
SBYS2	SELBY	SD	0.05E	0.05
SAJM7	ST JOSEPH	MO	0.05E	0.05
STJ	ST JOSEPH 4WNW	MO	0.05	0.05
SJSM7	ST JOSEPH, MISSOURI	MO	0.05E	0.05
STON1	STANTON 7NE	NE	0.05	0.05
STAN1	STAPLETON 5W	NE	0.05	0.05
SMNM7	SUMNER 3SW	MO	0.05E	0.05
TBLN1	TABLE ROCK 4N	NE	0.05	0.05
TAPN8	TAPPEN 3NW	ND	0.05E	0.05
TRUW4	TROUT CREEK	WY	0.05E	0.05

TURS2	TURTON	SD	0.05	0.05
VERS2	VERMILLION 3N	SD	0.05E	0.05
WAGS2	WAGNER	SD	0.05E	0.05
WKPS2	WAKPALA	SD	0.05E	0.05
WLNK1	WALNUT 3S	KS	0.05E	0.05
WTDN8	WATFORD CITY	ND	0.05	0.05
WFCN8	WATFORD CITY	ND	0.05E	0.05
WACN8	WATFORD CITY 12E	ND	0.05E	0.05
WCYN8	WATFORD CITY 1S	ND	0.05E	0.05
WEPN1	WEeping WATER	NE	0.05E	0.05
WEWS2	WEWELA 1N	SD	0.05	0.05
ALIN1	ALLIANCE 1WNW	NE	0.04E	0.04
ANGN1	ANGORA 8NE	NE	0.04E	0.04
BROM8	AUGUSTA 12ENE	MT	0.04E	0.04
AUGM8	AUGUSTA, ELK CR	MT	0.04E	0.04
ASTM8	AUGUSTA, ELK CR	MT	0.04E	0.04
BRNK1	BARNARD, SALT CR	KS	0.04E	0.04
BARN1	BARNESTON, BIG BLUE	NE	0.04E	0.04
MFBW4	BARNUM, POWDER R	WY	0.04	0.04
BLGN1	BELGRADE	NE	0.04E	0.04
PIPS2	BELVIDERE 6SE	SD	0.04	0.04
SBRW4	BOYSEN DAM DCP	WY	0.04E	0.04
BYI	BURLEY AIRPORT	ID	0.04E	0.04
WBRM8	CORVALLIS 2NE	MT	0.04E	0.04
DTNN1	DALTON	NE	0.04E	0.04
DAWN8	DAWSON	ND	0.04E	0.04
DTRW4	DEVILS TOWER	WY	0.04E	0.04
DBSI1	DUBOIS EXP STATION	ID	0.04E	0.04

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EGYN8	EDGELEY 3WNW	ND	0.04E	0.04
ELSN1	ELLSWORTH 15NNE	NE	0.04E	0.04
ESBK1	ESBON 7N	KS	0.04E	0.04
RSNW4	FALES ROCK RAWS	WY	0.04E	0.04
FLTC2	FLATIRON RESERVOIR	CO	0.04	0.04
FPRS2	FORT PIERRE 17WSW	SD	0.04E	0.04
0391N8	FREDONIA 1E	ND	0.04E	0.04
GLDW4	GLENDO RESERVOIR	WY	0.04E	0.04
GDVN8	GOLDEN VALLEY 10S	ND	0.04E	0.04
GOTN1	GOTHENBURG	NE	0.04E	0.04
HBGI4	HAMBURG #2	IA	0.04E	0.04
HMBI4	HAMBURG, NISHNABOTNA	IA	0.04	0.04
HANK1	HANOVER 4S	KS	0.04E	0.04
PNWS2	HILLAND 2NW	SD	0.04E	0.04
HODS2	HOWARD 11WSW	SD	0.04E	0.04
HUMN1	HUMPHREY	NE	0.04E	0.04
IRQS2	IROQUOIS	SD	0.04E	0.04
IRVN1	IRVINGTON	NE	0.04E	0.04
JTWN8	JAMESTOWN HOSPITAL	ND	0.04	0.04
JMSN8	JAMESTOWN, JAMES R	ND	0.04E	0.04
KBLS2	KIMBALL	SD	0.04E	0.04
LEIN8	LEITH 13SW	ND	0.04E	0.04
LOKN1	LINCOLN 5NW, OAK CR	NE	0.04	0.04

LNAN1	LINCOLN FIRE STA 1	NE	0.04E	0.04
LNEN1	LINCOLN FIRE STA 7	NE	0.04E	0.04
LNCK1	LINCOLNVILLE	KS	0.04E	0.04
SHEM001	LITCHFIELD 4N	NE	0.04E	0.04
LIVC2	LIVERMORE, POUDRE R	CO	0.04E	0.04
LGVS2	LONGVALLEY	SD	0.04E	0.04
MOME1	MADISON	MO	0.04E	0.04
MAHS2	MAHTO	SD	0.04E	0.04
MEDN1	MEAD 6S	NE	0.04E	0.04
MLFK1	MILFORD DAM	KS	0.04E	0.04
MLLN1	MILLER	NE	0.04E	0.04
CBAS2	MUD LAKE OUTLET	SD	0.04E	0.04
MLSN1	MULLEN 15S	NE	0.04E	0.04
COBO34	NEDERLAND 1WNW	CO	0.04	0.04
NRVC2	NEW RAYMER	CO	0.04E	0.04
NTWN8	NEW TOWN 4W	ND	0.04E	0.04
NWPN1	NEWPORT	NE	0.04E	0.04
ODLN1	ODELL	NE	0.04E	0.04
OGLN1	OGALLALA	NE	0.04E	0.04
OLDW4	OLD BATTLE	WY	0.04E	0.04
FOFW4	OLD FAITHFUL	WY	0.04E	0.04
OMCN1	OMAHA 6NW	NE	0.04E	0.04
OSBK1	OSBORNE, SOLOMON R	KS	0.04	0.04
PXTN1	PAXTON KORTY POWER	NE	0.04E	0.04
PETN1	PETERSBURG	NE	0.04E	0.04
PTTS2	PLATTE (AMRAD)	SD	0.04E	0.04
RCHK1	RICHLAND, WAKARUSA R	KS	0.04E	0.04
RIVW4	RIVERTON	WY	0.04E	0.04
RSO1	ROSCOE, SO PLATTE R	NE	0.04	0.04
SHLN1	SHELBY 3NE	NE	0.04E	0.04

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SMMM8	SIMMS 1NE	MT	0.04E	0.04
SODM7	ST JOE WHITHD (4)	MO	0.04E	0.04
SJPM7	ST JOSEPH 4SE	MO	0.04E	0.04
STKS2	STICKNEY	SD	0.04E	0.04
SRPN1	SURPRISE, BIG BLUE R	NE	0.04E	0.04
TFKM8	THREE FORKS 3NW GDDS	MT	0.04	0.04
TONK1	TONGANOXIE 5SE	KS	0.04E	0.04
TRYK1	TROY 3N	KS	0.04E	0.04
ULYN1	ULYSSES	NE	0.04E	0.04
UUUK1	UNIONTOWN, MARMATON R	KS	0.04E	0.04
UPNW4	UPTON 19SW	WY	0.04E	0.04
RVNW4	UPTON 19SW	WY	0.04E	0.04
WTCK1	WHITE CITY	KS	0.04E	0.04
WLLW4	WILLWOOD DAM	WY	0.04E	0.04
BEKS2	WINFRED 2S	SD	0.04E	0.04
YWG	WINNEPEG	MB	0.04	0.04
WYMN1	WYMORE	NE	0.04E	0.04
YLAW4	YELLOWSTONE (MAMMOTH)	WY	0.04E	0.04
KDNS2	ABERDEEN 6SE	SD	0.03E	0.04
ABR	ABERDEEN AIRPORT	SD	0.03	0.04
ANW	AINSWORTH	NE	0.03E	0.04

AKAS2	AKASKA 21SE	SD	0.03E	0.04
ALVW4	ALCOVA 17NW	WY	0.03E	0.04
ALEN8	ALEXANDER 4NNW	ND	0.03E	0.04
AIA	ALLIANCE	NE	0.03	0.04
ALAN1	ALLIANCE 1WNW	NE	0.03E	0.04
ARCN1	ARCADIA	NE	0.03	0.04
ARMS2	ARMOUR	SD	0.03E	0.04
ARTS2	ARTAS	SD	0.03E	0.04
AUBN1	AUBURN 5ESE	NE	0.03	0.04
ABRN1	AUBURN, LTL NEMAHA R	NE	0.03E	0.04
BNEM8	BABB 6NE	MT	0.03E	0.04
COWW4	BAGGS 21NNE	WY	0.03E	0.04
BTHS2	BATH 1NE	SD	0.03E	0.04
BDE	BAUDETTE AIRPORT	MN	0.03E	0.04
BNAM7	BEAN LAKE	MO	0.03E	0.04
BRPK1	BLUE RAPIDS	KS	0.03	0.04
BLRK1	BLUE RAPIDS	KS	0.03E	0.04
BDLC2	BRIGGSDALE	CO	0.03E	0.04
4BQ	BROADUS	MT	0.03E	0.04
BKNM8	BROCKTON 20S	MT	0.03E	0.04
BROK1	BURR OAK 1N	KS	0.03	0.04
BYNM7	BYNUMVILLE 1E	MO	0.03E	0.04
27D	CANBY	MN	0.03E	0.04
CARK1	CARBONDALE	KS	0.03E	0.04
CEDN1	CEDAR RAPIDS	NE	0.03E	0.04
CDJ	CHILLICOTHE	MO	0.03	0.04
CNDS2	CONDE	SD	0.03E	0.04
CORM8	CORWIN SPRINGS	MT	0.03E	0.04
OSKN1	CRESCENT LAKE REFUGE	NE	0.03E	0.04
CULM8	CULBERTSON	MT	0.03E	0.04
CLBM8	CULBERTSON 3SE	MT	0.03E	0.04
DOLS2	DOLAND	SD	0.03E	0.04

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WYFM4	DUBOIS 10WNW	WY	0.03E	0.04
HAYE002	ELSIE 14SE	NE	0.03E	0.04
ERIK1	ERIE	KS	0.03	0.04
FORN8	FORBES 10NW	ND	0.03E	0.04
FLTN1	FULLERTON	NE	0.03	0.04
GRGS2	GREGORY	SD	0.03E	0.04
GRSN1	GRESHAM 3W	NE	0.03E	0.04
GROS2	GROTON	SD	0.03E	0.04
HRBM8	HARB	MT	0.03E	0.04
HZZS2	HAYES 7SW	SD	0.03E	0.04
HAYN1	HAYES CENTER 1NW	NE	0.03	0.04
HOUS2	HOUGHTON 4SE	SD	0.03E	0.04
JMS	JAMESTOWN AIRPORT	ND	0.03	0.04
NEMA009	JOHNSON 2E	NE	0.03E	0.04
3JC	JUNCTION CITY	KS	0.03E	0.04
KNGN1	KINGSLEY DAM	NE	0.03E	0.04
KINW4	KINNEAR 2SW, WIND R	WY	0.03E	0.04
3OI	LAMONI	IA	0.03	0.04
LCTK1	LECOMPTON	KS	0.03E	0.04



LCPK1	LECOMPTON, KANSAS R	KS	0.03E	0.04
LWTN1	LEWISTON	NE	0.03E	0.04
LCLN1	LINCOLN FIRE STA 4	NE	0.03E	0.04
LNSK1	LINDSBORG, SMOKY HILL	KS	0.03E	0.04
EHNC2	LIVERMORE, POUDRE R	CO	0.03E	0.04
LLFM8	LOGAN 1E	MT	0.03E	0.04
LOGM8	LOGAN, GALLATIN R	MT	0.03E	0.04
LOWS2	LOWRY	SD	0.03E	0.04
COB085	LYONS 1NNW	CO	0.03E	0.04
MADM7	MADISON	MO	0.03E	0.04
MAZM7	MADISON	MO	0.03E	0.04
QADW4	MAMMOTH 25WSW	WY	0.03E	0.04
MARN8	MARION 3S	ND	0.03E	0.04
MNDM7	MENDON, HICKORY BR	MO	0.03E	0.04
MVLS2	MILESVILLE 5NE	SD	0.03E	0.04
MLNS2	MILLTOWN, JAMES R	SD	0.03E	0.04
HPWS2	MISSION RIDGE 3NW	SD	0.03E	0.04
MVDM5	MONTEVIDEO	MN	0.03E	0.04
MTRS2	MONTROSE 8N	SD	0.03E	0.04
MORM8	MOORHEAD 9NE	MT	0.03E	0.04
MHDM8	MOORHEAD, POWDER R	MT	0.03	0.04
MTVS2	MT VERNON, FIRESTEEL	SD	0.03	0.04
MHN	MULLEN	NE	0.03E	0.04
MLNN1	MULLEN	NE	0.03E	0.04
MUDS2	MURDO (AMRAD)	SD	0.03E	0.04
NEBN1	NEBRASKA CITY	NE	0.03E	0.04
NCYN1	NEBRASKA CITY 2NW	NE	0.03E	0.04
NDLC2	NEDERLAND 2NNE	CO	0.03E	0.04
NLSK1	NILES, SOLOMON R	KS	0.03E	0.04
NOTK1	NORTON 3SW	KS	0.03E	0.04
OMBN1	OMAHA 8W	NE	0.03E	0.04
ORDS2	ORDWAY 1S, ELM R	SD	0.03E	0.04
ORGM7	OREGON	MO	0.03E	0.04
OSCN1	OSCEOLA	NE	0.03	0.04

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PARS2	PARKSTON 8ENE	SD	0.03E	0.04
PTHW4	PATHFINDER DAM	WY	0.03E	0.04
PAXN1	PAXTON	NE	0.03E	0.04
PRIM7	PRAIRIE HILL 2WNW	MO	0.03	0.04
RLSC2	RALSTON RESERVOIR	CO	0.03E	0.04
GDNC2	RALSTON RESERVOIR	CO	0.03	0.04
RAUN8	RAUB 5NNE	ND	0.03E	0.04
RLVC2	ROLLINSVILLE 1NW	CO	0.03E	0.04
SELS2	SELBY	SD	0.03E	0.04
SNCK1	SENECA, TURKEY CR	KS	0.03	0.04
SSRM8	SIMMS, SUN R	MT	0.03E	0.04
KEYA001	SPRINGVIEW 17WNW	NE	0.03E	0.04
SPLN1	ST PAUL #2 MID LOUP	NE	0.03E	0.04
STPN1	ST PAUL 4N	NE	0.03	0.04
SPUN1	ST PAUL, NORTH LOUP	NE	0.03E	0.04
0124N8	STERLING 6SE	ND	0.03E	0.04
COLR404	STOVE PRAIRIE 3SSE	CO	0.03E	0.04

TCMN1	TECUMSEH	NE	0.03E	0.04
KSSN7	TOPEKA 5ESE	KS	0.03E	0.04
FOE	TOPEKA FORBES FIELD	KS	0.03	0.04
UION1	UNION, WEEPING WATER	NE	0.03E	0.04
UTCN1	UTICA	NE	0.03	0.04
WLLN1	WALLACE 2W	NE	0.03E	0.04
WTGS2	WATAUGA 8N	SD	0.03E	0.04
WGTC2	WELLINGTON 5WNW	CO	0.03E	0.04
WLDW4	WHEATLAND 4N	WY	0.03E	0.04
WSGM8	WHITE SULPHUR 2WNW	MT	0.03E	0.04
WTON8	WILTON	ND	0.03	0.04
OLF	WOLF POINT	MT	0.03	0.04
YLWW4	YELLOWSTONE(MAMMOTH)	WY	0.03E	0.04
ACYS2	ACADEMY 2NE	SD	0.02E	0.02
ABAM7	ALBANY, E FK GRAND R	MO	0.02E	0.02
ALBN1	ALBION	NE	0.02E	0.02
APKC2	ALLENSPARK 1NW	CO	0.02E	0.02
ALKC2	ALLENSPARK 2NNW	CO	0.02E	0.02
AMCK1	AMERICUS 2S	KS	0.02E	0.02
ANTN1	ANTIOCH	NE	0.02E	0.02
ARLS2	ARLINGTON 1W	SD	0.02E	0.02
ARAS2	ARTAS 1S	SD	0.02E	0.02
ASHN1	ASHTON	NE	0.02E	0.02
AUBK1	AUBURN	KS	0.02E	0.02
BADS2	BADGER 4NE	SD	0.02E	0.02
BASK1	BASEHOR 3NE	KS	0.02E	0.02
BEUN8	BEULAH 1W	ND	0.02E	0.02
BUAN8	BEULAH 2NW	ND	0.02E	0.02
BIDM8	BIDDLE	MT	0.02E	0.02
BNRK1	BONNER SPRINGS	KS	0.02E	0.02
BRKS2	BROOKINGS, BIG SIOUX	SD	0.02	0.02
DSPK1	BURDICK	KS	0.02E	0.02
CNGS2	CANNING 1W	SD	0.02E	0.02
CPRS2	CARPENTER 4NNE	SD	0.02E	0.02
CDRS2	CEDAR BUTTE 1NE	SD	0.02E	0.02
CTLN1	CENTRAL CITY	NE	0.02E	0.02

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CERN1	CERESCO 6SE, ROCK CR	NE	0.02E	0.02
9V9	CHAMBERLAIN	SD	0.02	0.02
CBRS2	CHAMBERLAIN 5S	SD	0.02E	0.02
CHYS2	CHERRY CREEK GDDS	SD	0.02E	0.02
CHEW4	CHEYENNE 7W	WY	0.02E	0.02
CLKC2	CLARK	CO	0.02E	0.02
CLNK1	CLAYTON, PRAIRIE DOG	KS	0.02E	0.02
CDAW4	CODY 25NW	WY	0.02E	0.02
COS	COLORADO SPRINGS	CO	0.02	0.02
CNEC2	COLORADO SPRINGS 4NE	CO	0.02E	0.02
CROS2	CROCKER 6SW	SD	0.02E	0.02
CKKC2	CROOK	CO	0.02	0.02
CROC2	CROOK 7NNE	CO	0.02E	0.02
CTSN1	CURTIS 3NNE	NE	0.02E	0.02
MORR004	DALTON 10ENE	NE	0.02E	0.02

DELK1	DELIA 3E, SOLDIER CR	KS	0.02E	0.02
DIAK1	DIAMOND SPRINGS	KS	0.02E	0.02
DUGW4	DOUGLAS 17NE	WY	0.02E	0.02
DUBW4	DUBOIS, WIND R	WY	0.02	0.02
EDGN8	EDGELEY 3W	ND	0.02E	0.02
KDKC2	ELDORA 3W AMRAD	CO	0.02E	0.02
ELIN1	ELI	NE	0.02E	0.02
EMDK1	ELMDALE 3NE	KS	0.02E	0.02
EPRK1	EMPORIA 3NW	KS	0.02	0.02
ESTS2	ESTELLINE	SD	0.02E	0.02
ERKS2	EUREKA	SD	0.02E	0.02
JEFF002	FAIRBURY 9WSW	NE	0.02E	0.02
FLKK1	FARLINGTON	KS	0.02E	0.02
FPKM8	FORT PECK DAM	MT	0.02E	0.02
FPKS2	FRANKFORT	SD	0.02E	0.02
FTRN8	FT RANSOM 4NNE	ND	0.02E	0.02
FRI	FT RILEY	KS	0.02	0.02
FRYK1	FT RILEY	KS	0.02E	0.02
FTRK1	FT RILEY, KANSAS R	KS	0.02E	0.02
GNAN1	GENOA 2W	NE	0.02E	0.02
GEON1	GENOA, BEAVER CR	NE	0.02E	0.02
GLWM8	GLASGOW 3SE, MILK R	MT	0.02	0.02
GGWM8	GLASGOW WFO	MT	0.02	0.02
GOEN1	GOEHNER	NE	0.02E	0.02
PERK018	GRANT 8WSW	NE	0.02E	0.02
GRNN1	GREENWOOD, SALT CR	NE	0.02E	0.02
GTNS2	GROTON	SD	0.02E	0.02
GDRN1	GUIDE ROCK	NE	0.02E	0.02
GUIN1	GUIDE ROCK, REPUB R	NE	0.02E	0.02
CHEY002	GURLEY 6SE	NE	0.02E	0.02
GYSK1	GYPSUM 4S, GYPSUM CR	KS	0.02	0.02
HMLM7	HAMILTON 2W	MO	0.02	0.02
HDYN1	HARDY, REPUBLICAN R	NE	0.02E	0.02
HENN1	HENRY, NO PLATTE R	NE	0.02E	0.02
HEDS2	HERRIED	SD	0.02E	0.02
HLLC2	HIGHLAND DITCH	CO	0.02E	0.02
HRSC2	HORSETOOTH RESERVOIR	CO	0.02E	0.02
HOES2	HOSMER 9E	SD	0.02E	0.02

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HOYK1	HOYT	KS	0.02E	0.02
PAHS2	KEYAPAHA, KEYAPAHA R	SD	0.02E	0.02
KRLS2	KIRLEY 6N	SD	0.02E	0.02
LPTC2	LA PORTE	CO	0.02E	0.02
VCWK1	LACLEDE, VERMILLION	KS	0.02E	0.02
LELC2	LAKE ELDORA	CO	0.02E	0.02
COLR254	LAPORTE	CO	0.02E	0.02
0308N8	LEITH 14SW	ND	0.02E	0.02
Y22	LEMMON	SD	0.02E	0.02
LEMS2	LEMMON	SD	0.02E	0.02
LOLS2	LEOLA 1E	SD	0.02E	0.02
LCON1	LISCO	NE	0.02E	0.02
LSOIN1	LISCO, NO PLATTE R	NE	0.02E	0.02

LIES2	LITTLE EAGLE,GRAND R	SD	0.02E	0.02
COLR250	LIVERMORE 11WSW	CO	0.02E	0.02
LUPN1	LOUP CITY, MID LOUP	NE	0.02	0.02
LNCS2	LYONS, ST VRAIN CR	CO	0.02E	0.02
MRFS2	MADISON 2SE	SD	0.02E	0.02
MNHK1	MANHATTAN 6S	KS	0.02E	0.02
MHK	MANHATTAN MUNICPL AP	KS	0.02	0.02
MPHK1	MAPLE HILL	KS	0.02E	0.02
MRON8	MARION	ND	0.02E	0.02
COLR253	MASONVILLE 8NW	CO	0.02E	0.02
MCFK1	MCFARLAND	KS	0.02	0.02
MSNS2	MISSION 14S	SD	0.02	0.02
MGCN1	MITCHELL GERING CAN	NE	0.02	0.02
MNDS2	MOUND CITY	SD	0.02E	0.02
MURS2	MURDO	SD	0.02E	0.02
WHLW4	N PLATTE BLO WHALEN	WY	0.02E	0.02
NASM8	NASHUA #2	MT	0.02E	0.02
NSHM8	NASHUA, MILK R	MT	0.02E	0.02
FPMM8	NASHUA, MISSOURI R	MT	0.02E	0.02
ECS	NEWCASTLE 5NW	WY	0.02E	0.02
OKAS2	OKATON	SD	0.02E	0.02
WSCS2	ONIDA 15NW	SD	0.02E	0.02
ONAS2	ONIDA 25W	SD	0.02E	0.02
OVrk1	OVERBROOK 7SE	KS	0.02E	0.02
PWDN8	PAINTED WOODS CR	ND	0.02E	0.02
PXCK1	PAXICO 1SW, MILL CR	KS	0.02E	0.02
PTBN8	PETTIBONE	ND	0.02E	0.02
PLNS2	PLAINVIEW,CHEYENNE R	SD	0.02E	0.02
PLCN1	PLATTE CENTER	NE	0.02E	0.02
PLTM7	PLATTSBURG	MO	0.02E	0.02
LPPM7	PLATTSBURG 2E	MO	0.02E	0.02
PLZN8	PLAZA 10S	ND	0.02E	0.02
PLKN1	POLK	NE	0.02E	0.02
POLS2	POLLOCK	SD	0.02E	0.02
PROS2	PRESHO 7NW	SD	0.02E	0.02
COJF140	RALSTON BUTTES 1NNW	CO	0.02E	0.02
SRMS2	RAMONA	SD	0.02E	0.02
RWL	RAWLINS	WY	0.02	0.02
RLSW4	RAWLINS 1N	WY	0.02E	0.02
RLNW4	RAWLINS 1NE	WY	0.02E	0.02

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RAYS2	RAYMOND 3NE	SD	0.02E	0.02
RCSW4	RECLUSE 18N	WY	0.02E	0.02
3DE	REDFIELD	SD	0.02E	0.02
RDFS2	REDFIELD	SD	0.02E	0.02
RFDS2	REDFIELD, JAMES R	SD	0.02	0.02
SSKW4	RIVERSIDE, SPRING CR	WY	0.02E	0.02
RVEK1	ROSSVILLE	KS	0.02	0.02
RSSK1	ROSSVILLE, CROSS CR	KS	0.02E	0.02
ROYN1	ROYAL 2SE	NE	0.02E	0.02
GRAS2	SHADEHILL, NF GRAND	SD	0.02E	0.02
SHLM8	SHELBY 6S	MT	0.02E	0.02

SINN1	SIDNEY 1SSE	NE	0.02E	0.02
SDYN1	SIDNEY 2S	NE	0.02E	0.02
CHEY035	SIDNEY 7W	NE	0.02E	0.02
SNY	SIDNEY AIRPORT	NE	0.02	0.02
SPKN1	SPARKS, NIOBRARA R	NE	0.02E	0.02
SPHN1	STAPLEHURST 3WNW	NE	0.02E	0.02
STEN8	STEELE 3N	ND	0.02E	0.02
COLR251	STOVE PRAIRIE 2WNW	CO	0.02E	0.02
SFDS2	STRATFORD, JAMES R	SD	0.02E	0.02
SURN1	SURPRISE	NE	0.02E	0.02
TMPM8	TAMPICO, MILK R	MT	0.02E	0.02
TOP	TOPEKA	KS	0.02E	0.02
TSEK1	TOPEKA SW 37TH ST	KS	0.02E	0.02
VTN	VALENTINE	NE	0.02	0.02
CHER007	VALENTINE 10WNW	NE	0.02E	0.02
CHER010	VALENTINE 19SSW	NE	0.02E	0.02
VTNN1	VALENTINE 4SSE	NE	0.02E	0.02
RANS2	VEBLEN 5W	SD	0.02E	0.02
WPRW4	WAPITI 1W	WY	0.02E	0.02
BABC2	WARD 3NNW, BEAVER CR	CO	0.02E	0.02
WARM8	WARRICK 2NW	MT	0.02E	0.02
BLCW4	WASHAKIE 19NW	WY	0.02E	0.02
BSWS2	WATERTOWN, BIG SIOUX	SD	0.02E	0.02
WAVK1	WAVERLY	KS	0.02E	0.02
DODW4	WHEATLAND 28WSW	WY	0.02E	0.02
WRVS2	WHITE RIVER	SD	0.02E	0.02
LWRS2	WHITE RIVER 2N	SD	0.02	0.02
WEFN8	WILLISTON EXP FARM	ND	0.02E	0.02
WLTN8	WILLISTON, MISSOURI R	ND	0.02E	0.02
0126N8	WILTON 7NE	ND	0.02E	0.02
WNDK1	WINDOM 1SE	KS	0.02E	0.02
WLFM8	WOLF POINT	MT	0.02E	0.02
WDWN8	WOODWORTH 3E	ND	0.02E	0.02
ZIRC2	ZIRKEL	CO	0.02E	0.02
EVES2	ABERDEEN 2E	SD	0.01E	0.01
ADAK1	ADA 3ESE, SALT CR	KS	0.01E	0.01
AGAS2	AGAR 3N	SD	0.01E	0.01
ABTK1	ALBERT 5SE	KS	0.01E	0.01
SWEW4	ALCOVA, SWEETWATER R	WY	0.01	0.01
ALDN1	ALDA 1SW, WOOD R	NE	0.01E	0.01
ALXS2	ALEXANDRIA	SD	0.01E	0.01
ALVK1	ALTA VISTA	KS	0.01E	0.01

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ARHN1	ARTHUR	NE	0.01E	0.01
SMMC2	ARVADA	CO	0.01E	0.01
ASBN1	ASHBY 20SSW	NE	0.01E	0.01
ASHS2	ASHTON 2SW	SD	0.01E	0.01
HTOS2	ASHTON 5E	SD	0.01E	0.01
BGRS2	BADGER 2S	SD	0.01E	0.01
BDAN1	BARADA 3SW	NE	0.01E	0.01
BSTN1	BASSETT	NE	0.01E	0.01
BAYM8	BAYLOR	MT	0.01E	0.01

BOUS2	BEAR BUTTE CREEK	SD	0.01E	0.01
BVCN1	BEAVER CITY	NE	0.01E	0.01
BVRN1	BEAVER CROSSING	NE	0.01E	0.01
BJI	BEMIDJI AIRPORT	MN	0.01E	0.01
BLIN8	BERLIN	ND	0.01E	0.01
BDDM8	BIDDLE 8SW	MT	0.01E	0.01
BPI	BIG PINEY	WY	0.01	0.01
BGSN1	BIG SPRINGS	NE	0.01E	0.01
BKFC2	BLACK FOREST	CO	0.01E	0.01
BNTS2	BLUNT	SD	0.01E	0.01
BLNS2	BLUNT 6E	SD	0.01E	0.01
BLTS2	BLUNT 6E	SD	0.01E	0.01
BOSW4	BOSLER 2S, LARAMIE R	WY	0.01E	0.01
LLHC2	BOULDER 6NW	CO	0.01E	0.01
BZN	BOZEMAN AIRPORT	MT	0.01	0.01
BSHM8	BRADSHAW CREEK RAWS	MT	0.01	0.01
BRDM8	BREDETTE	MT	0.01E	0.01
BFTS2	BRENTFORD	SD	0.01E	0.01
BRSS2	BRISTOL 5SW	SD	0.01E	0.01
BKX	BROOKINGS	SD	0.01E	0.01
0787N8	BUCHANAN 2S	ND	0.01E	0.01
CMRW4	CASPER MOUNTAIN	WY	0.01E	0.01
0581N8	CENTER 1E	ND	0.01E	0.01
CPMN1	CHAPMAN	NE	0.01E	0.01
CLFK1	CLAFLIN	KS	0.01E	0.01
CLDI4	CLARINDA	IA	0.01	0.01
ICLI4	CLARINDA, NODAWAY R	IA	0.01	0.01
CFHM7	CLIFTON HILL	MO	0.01E	0.01
CCCC2	COAL CREEK CANYON	CO	0.01E	0.01
COD	CODY	WY	0.01E	0.01
COPW4	CODY	WY	0.01E	0.01
CODW4	CODY	WY	0.01E	0.01
CODN1	CODY	NE	0.01E	0.01
CFV	COFFEYVILLE AIRPORT	KS	0.01	0.01
CSIC2	COLORADO SIERRA	CO	0.01E	0.01
COKN1	COOK	NE	0.01E	0.01
COUN8	COURTENAY 1NW	ND	0.01E	0.01
COVK1	COVERT	KS	0.01E	0.01
COZN1	COZAD 2S, PLATTE R	NE	0.01E	0.01
CRBN1	CRAB ORCHARD	NE	0.01E	0.01
CRKC2	CROOK	CO	0.01E	0.01
DNBN1	DANNEBROG #2	NE	0.01E	0.01
DABN1	DANNEBROG 4NW	NE	0.01E	0.01
DBGN1	DANNEBROG, TURKEY CR	NE	0.01	0.01

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DAWN1	DAWSON 4ESE	NE	0.01E	0.01
DOSS2	DOLAND	SD	0.01E	0.01
DFRW4	DOUBLE FOUR RANCH	WY	0.01E	0.01
DBOW4	DUBOIS, WIND R	WY	0.01E	0.01
SUMM8	EAST GLACIER 11SW	MT	0.01E	0.01
EFFK1	EFFINGHAM	KS	0.01E	0.01
ELON1	ELLSWORTH	NE	0.01E	0.01

EPPN8	EPPING	ND	0.01E	0.01
ESTW4	ESTERBROOK RAWS	WY	0.01E	0.01
ETHS2	ETHAN	SD	0.01E	0.01
FABN1	FAIRBURY 5S	NE	0.01E	0.01
FRXM7	FAIRFAX	MO	0.01E	0.01
FFDM8	FAIRFIELD	MT	0.01E	0.01
FERS2	FERNEY	SD	0.01E	0.01
FTBS2	FORESTBURG 3NE	SD	0.01E	0.01
FCS	FORT CARSON	CO	0.01E	0.01
FORC2	FORT COLLINS (CSU)	CO	0.01E	0.01
COLR259	FORT COLLINS 3W	CO	0.01E	0.01
COLR406	FORT COLLINS 4N	CO	0.01E	0.01
FKNN1	FRANKLIN, CENTER CR	NE	0.01E	0.01
FULS2	FULTON, ROCK CR	SD	0.01E	0.01
GVYS2	GANN VALLEY 8SW	SD	0.01E	0.01
N60	GARRISON 1W	ND	0.01	0.01
GSHW4	GAS HILLS 4E	WY	0.01E	0.01
GENK1	GENESE0 2N	KS	0.01E	0.01
GGBS2	GETTYSBURG 10SW	SD	0.01E	0.01
GTYS2	GETTYSBURG 13W	SD	0.01E	0.01
GLCK1	GLASCO	KS	0.01E	0.01
GLAK1	GLASCO, SOLOMON R	KS	0.01E	0.01
GGW	GLASGOW INTL AIRPORT	MT	0.01	0.01
GCMC2	GLEN COMFORT	CO	0.01E	0.01
GLCC2	GLEN COMFORT	CO	0.01E	0.01
GNAM8	GLENTANA 4SW	MT	0.01E	0.01
COJF257	GOLDEN 4NNW	CO	0.01E	0.01
COJF16	GOLDEN 4WNW	CO	0.01E	0.01
GONC2	GOLDEN 6NW	CO	0.01E	0.01
GRWN1	GRAND ISLAND	NE	0.01E	0.01
GRIN1	GRAND ISLAND 5SE	NE	0.01E	0.01
GRI	GRAND ISLAND AIRPORT	NE	0.01	0.01
GIDN1	GRAND ISLAND, WOOD R	NE	0.01E	0.01
0371N8	GRAND RAPIDS 3SW	ND	0.01E	0.01
KMLS2	GROTON 7NW	SD	0.01E	0.01
WEBS011	GUIDE ROCK 9N	NE	0.01E	0.01
HGEN8	HAGUE	ND	0.01E	0.01
0592N8	HANNOVER 3E	ND	0.01E	0.01
HARN1	HARDY	NE	0.01E	0.01
HLDS2	HARROLD 12SSW	SD	0.01E	0.01
HZTN8	HAZELTON 4NW	ND	0.01E	0.01
HZNN8	HAZEN 1S, KNIFE R	ND	0.01E	0.01
DOGS2	HE DOG LAKE	SD	0.01E	0.01
HBDM8	HEBGEN DAM	MT	0.01E	0.01
HBGM8	HEBGEN DAM	MT	0.01E	0.01
HECS2	HECLA	SD	0.01E	0.01

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HDKM5	HENDRICKS	MN	0.01E 0.01
HERK1	HERINGTON	KS	0.01 0.01
K87	HIAWATHA 5SSE	KS	0.01E 0.01
FRAN002	HILDRETH 5SSE	NE	0.01E 0.01
HLTM7	HOLT 3E	MO	0.01E 0.01

HOPM7	HOPKINS	MO	0.01	0.01
HTRC2	HORSETOOTH RESERVOIR	CO	0.01E	0.01
HRTK1	HORTON	KS	0.01E	0.01
IDA	IDAHO FALLS	ID	0.01	0.01
IPIN1	IMPERIAL 13N	NE	0.01E	0.01
IONS2	IONA 2NE	SD	0.01E	0.01
IPSS2	IPSWICH	SD	0.01E	0.01
JLBC2	JULESBURG	CO	0.01E	0.01
JUBC2	JULESBURG CHANNEL #1	CO	0.01E	0.01
JBGC2	JULESBURG RETURN	CO	0.01	0.01
JULC2	JULESBURG, CHAN #2	CO	0.01E	0.01
KTHN8	KATHRYN	ND	0.01E	0.01
KENS2	KENNEBEC	SD	0.01E	0.01
KEYW4	KEYHOLE RES	WY	0.01E	0.01
KIGN1	KILGORE 1NE	NE	0.01E	0.01
KWNK1	KIRWIN 1S	KS	0.01E	0.01
KRWK1	KIRWIN DAM	KS	0.01	0.01
LMRW4	LAMAR RANGER STATION	WY	0.01E	0.01
LPRW4	LAPRELE CREEK	WY	0.01E	0.01
LARM8	LAURIN 2NE	MT	0.01E	0.01
LRCK1	LAWRENCE	KS	0.01E	0.01
LWC	LAWRENCE	KS	0.01	0.01
LEOW4	LEO 6SW	WY	0.01E	0.01
LLAS2	LEOLA	SD	0.01E	0.01
LNJN1	LINCOLN FIRE STA 12	NE	0.01E	0.01
LSBK1	LINDSBORG	KS	0.01E	0.01
RESN1	LISCO 22NNE	NE	0.01E	0.01
LDGN1	LODGEPOLE	NE	0.01E	0.01
LDPN1	LODGEPOLE #2	NE	0.01E	0.01
LGPN1	LODGEPOLE 8N	NE	0.01E	0.01
LGIK1	LONG ISLAND 1N	KS	0.01E	0.01
LOT2	LOST DOG	CO	0.01E	0.01
COLR731	LOVELAND 4WSW	CO	0.01E	0.01
JSLN8	LUDDEN 6SW, JAMES R	ND	0.01E	0.01
LURK1	LURAY	KS	0.01E	0.01
THUC2	LYONS 7S	CO	0.01E	0.01
MTSM8	MALTA 13SW	MT	0.01E	0.01
MRTS2	MARTIN	SD	0.01E	0.01
LITS2	MARTIN, LTL WHITE R	SD	0.01	0.01
MLKN8	MCCLUSKY	ND	0.01E	0.01
MTRK1	MENTOR, SMOKY HILL R	KS	0.01E	0.01
MDDM7	MIDDLETOWN	MO	0.01E	0.01
MIRS2	MILLER 1NW	SD	0.01E	0.01
MLLK1	MILLER 4SSW	KS	0.01E	0.01
MHLS2	MITCHELL	SD	0.01E	0.01
MHE	MITCHELL AIRPORT	SD	0.01	0.01
ENES2	MITCHELL, ENEMY CR	SD	0.01E	0.01
MOFN8	MOFFIT, LONG LAKE CR	ND	0.01E	0.01

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MOON1	MOOREFIELD	NE	0.01E	0.01
SQUM7	MOUND CITY, SQUAW CR	MO	0.01E	0.01
MULN1	MULLEN 21NW	NE	0.01E	0.01



MROS2	MURDO 7WSW	SD	0.01E	0.01
NAPN1	NAPONEE, TURKEY CR	NE	0.01E	0.01
NCVN1	NEBRASKA CITY #2	NE	0.01E	0.01
COB057	NEDERLAND 6E	CO	0.01E	0.01
NZLN1	NENZEL 23SSW	NE	0.01E	0.01
NCMK1	NEW CAMBRIA 1SE	KS	0.01E	0.01
NION1	NIOBRARA	NE	0.01E	0.01
TCKW4	NORRIS JUNCTION 1NW	WY	0.01E	0.01
KSNT2	NORTON 1E	KS	0.01E	0.01
NMNC2	NUNN	CO	0.01E	0.01
NNNC2	NUNN	CO	0.01E	0.01
OKES2	OKREEK 4SSW	SD	0.01E	0.01
ODAS2	ONIDA 4NW	SD	0.01E	0.01
OPMM8	OPHEIM 12SSE	MT	0.01E	0.01
ORIW4	ORIN 2E, N PLATTE R	WY	0.01	0.01
OVIC2	OVID	CO	0.01E	0.01
PKD	PARK RAPIDS AIRPORT	MN	0.01E	0.01
PAES2	PARMELEE 7SSW	SD	0.01E	0.01
PAMS2	PARMELEE 7SSW	SD	0.01E	0.01
PTDW4	PATHFINDER DAM	WY	0.01E	0.01
PLTS2	PLATTE	SD	0.01E	0.01
PLSK1	PLEASANTON	KS	0.01E	0.01
PLYK1	PLYMOUTH 1SW	KS	0.01E	0.01
PIH	POCATELLO	ID	0.01	0.01
POLM7	POLO	MO	0.01E	0.01
PMNK1	POMONA 2S	KS	0.01E	0.01
POPM8	POPLAR	MT	0.01E	0.01
PAGM8	POPLAR 2WSW	MT	0.01E	0.01
UIN	QUINCY	IL	0.01	0.01
RANI4	RANDOLPH	IA	0.01	0.01
RDPI4	RANDOLPH 1W, W NISH	IA	0.01E	0.01
RAVN1	RAVENNA	NE	0.01E	0.01
RVNN1	RAVENNA, SO LOUP R	NE	0.01E	0.01
REDN1	RED CLOUD	NE	0.01E	0.01
RGNN8	REGAN 6NE	ND	0.01E	0.01
ARAW4	RIVERTON 7SW	WY	0.01E	0.01
RVTW4	RIVERTON, LTL WIND R	WY	0.01	0.01
RVRN1	RIVERTON, REPUBLICAN	NE	0.01E	0.01
RVTN1	RIVERTON, THOMPSON C	NE	0.01E	0.01
RLLC2	ROLLINSVILLE GDDS	CO	0.01E	0.01
RRSS2	ROSCO	SD	0.01E	0.01
ROSS2	ROSCOE	SD	0.01	0.01
SABK1	SABETHA	KS	0.01E	0.01
SLMN1	SALEM 5SW	NE	0.01	0.01
SDGC2	SEDGWICK 5S	CO	0.01E	0.01
SEWN1	SEWARD	NE	0.01E	0.01
SWRN1	SEWARD #2	NE	0.01E	0.01
SBTN1	SHUBERT 2SW	NE	0.01E	0.01
SIDN1	SIDNEY 6NNW	NE	0.01E	0.01
SPRN1	SPRAGUE	NE	0.01E	0.01

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SOFM7	ST JOE LNDFIL (6)	MO	0.01E	0.01

SLBN1	ST LIBORY	NE	0.01E	0.01
SMIM8	ST MARIE	MT	0.01E	0.01
0362N8	STEELE 7SW	ND	0.01E	0.01
JOHN005	STERLING 3ESE	NE	0.01E	0.01
STKK1	STOCKTON 1E	KS	0.01E	0.01
TSFK1	TOPEKA SW 29TH ST	KS	0.01E	0.01
TWRW4	TOWER FALLS	WY	0.01E	0.01
TFW4	TOWER FALLS STATION	WY	0.01E	0.01
TULS2	TULARE, TURTLE CR	SD	0.01E	0.01
VALN1	VALENTINE NWR	NE	0.01E	0.01
VALN8	VALLEY CITY 3NNW	ND	0.01E	0.01
VLYK1	VALLEY FALLS 3SW	KS	0.01	0.01
PERK005	VENANGO	NE	0.01E	0.01
VRMS2	VERMILLION 2SE	SD	0.01E	0.01
VDAC2	VIRGINIA DALE 7ENE	CO	0.01	0.01
COLR672	VIRGINIA DALE 7SSW	CO	0.01E	0.01
VOLS2	VOLGA	SD	0.01E	0.01
WAMW4	WAMSUTTER	WY	0.01E	0.01
NFSW4	WAPITI, NF SHOSHONE	WY	0.01E	0.01
WRNS2	WARNER	SD	0.01E	0.01
NLWW4	WASHAKIE, LTL WIND R	WY	0.01E	0.01
WASN8	WASHBURN	ND	0.01E	0.01
WSBN8	WASHBURN, MISSOURI R	ND	0.01E	0.01
WSHN8	WASHBURN, TURTLE CR	ND	0.01E	0.01
WTRC2	WATERDALE	CO	0.01E	0.01
WAUN1	WAUNETA	NE	0.01E	0.01
STCK1	WEBSTER DAM	KS	0.01E	0.01
WSWS2	WESSINGTON SPRNG 7SW	SD	0.01E	0.01
WGLM8	WEST GLACIER 1N	MT	0.01	0.01
WSTS2	WESTPORT 3SE	SD	0.01E	0.01
WPKW4	WHISKEY PARK	WY	0.01E	0.01
WLBK1	WILLIAMSBURG	KS	0.01E	0.01
WILK1	WILSEY	KS	0.01E	0.01
WRVW4	WIND RIVER	WY	0.01E	0.01
WIGN8	WING	ND	0.01E	0.01
WPTM8	WOLF POINT 5SE	MT	0.01	0.01
WUDS2	WOOD	SD	0.01E	0.01
WDRK1	WOODRUFF 3WSW	KS	0.01E	0.01
WODK1	WOODSTON, SF SOLOMON	KS	0.01	0.01
YORN1	YORK 3N	NE	0.01E	0.01
ZAPN8	ZAP, SPRING CR	ND	0.01E	0.01

>>>>>>> STOP

0\*\*\*\*\*

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0 CPU TIME USED = 0 MINUTES, 0 SECONDS

0 CLOCK TIME USED = 0 MINUTES, 0 SECONDS

0\*\*\*\*\*

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**From:**

**Sent:**

**To:**

Friday, June 10, 2011 9:24 AM

CENWO-EOC NWO; Bertino, John J Jr NWO;

'bruce.sullivan@noaa.gov'; 'bruce.terry@noaa.gov';

Davis, Joseph M Maj NWO; DLL-CENWO-EOC CMT-ALL

Farhat, Jody S NWD02; Farmer, Monique L NWO;

Johnston, Paul T

HQ@ NWO;

Robert, Robert J COL NWO;

Thomas, Kimberly S NWO; Tipton, Robert A Col NWD;

Williamson, Eileen L NWO;

Blechinger, Erik T NWO;

**Subject:**

Riverwatch Daily Update June 10, 2011 (UNCLASSIFIED)

**Attachments:**

Flood\_Fight\_Storyboard\_10JUN.docx

Classification: UNCLASSIFIED

Caveats: NONE

Missouri River Mainstem Reservoir Bulletin (Updated 10 Jun; 0800 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

\* 2251.4 ft msl

\* 24-hr Change (+0.2ft)

Daily Avg. Inflow

\* 83,000 cfs (9 Jun)

\* 79,000 cfs (8 Jun)

Daily Avg. Release

\* 53,600 cfs (9 Jun)

\* 50,700 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

\* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

\* Peak release will be 55,000 cfs by Friday.

\* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)

\* 2251.6 msl (1975)

Record Flow (Year)  
\* 35,000 cfs (1975)

Projected Record Flow (Date)  
\* 60,000 cfs (Mid June)

Garrison (In operation since 1955)  
Midnight Elevation  
\* 1853.2 ft msl  
\* 24-hr Change (0.0 ft)

Daily Avg. Inflow  
\* 124,000 cfs (9 Jun)  
\* 115,000 cfs (8 Jun)

Daily Avg. Release  
\* 130,600 cfs (9 Jun)  
\* 130,800 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates  
\* 1854 ft msl

River Stage (Bismarck)  
\* 17.48 (0615 CDT 10 Jun)  
\* Flood stage - 16 ft  
\* 17.46 (0815 CDT 9 Jun)

Planned Scheduled Releases (Subject to Change)  
\* Releases will be stepped up to 150,000 cfs by mid June.  
\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)  
\* 1854.8 msl (1975)

Record Flow (Year)  
\* 65,000 cfs (1975)

Projected Record Flow (Date)  
\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)  
Midnight Elevation  
\* 1618.8 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 135,000 cfs (9 Jun)  
\* 132,000 cfs (8 Jun)

Daily Avg. Release

\* 150,500 cfs (9 Jun)

\* 150,700 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

\* 1620 ft msl

River Stage (Pierre)

\* 18.88 (0630 CDT 10 Jun)

\* Flood stage - 15 ft

\* 18.84 (0731 CDT 9 Jun)

Planned Scheduled Releases (Subject to Change)

\* Releases have been stepped up to 150,000 cfs.

\* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

\* 1618.7 msl (1995)

Record Flow (Year)

\* 59,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

\* 1419.7 ft msl

\* 24-hr Change (+0.3 ft)

Daily Avg. Inflow

\* 140,000 cfs (9 Jun)

\* 148,000 cfs (8 Jun)

Daily Avg. Release

\* 138,700 cfs (9 Jun)

\* 148,400 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

\* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

\* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1361.6 ft msl

\* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

\* 148,000 cfs (9 Jun)

\* 155,000 cfs (8 Jun)

Daily Avg. Release

\* 136,300 cfs (9 Jun)

\* 137,000 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.6 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 146,000 cfs (9 Jun)

\* 141,000 cfs (8 Jun)

Daily Avg. Release

\* 140,100 cfs (9 Jun)

\* 135,600 cfs (8 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information:

<http://www.nwd-mr.usace.army.mil/rcc>

24-hr forecast (Glasgow, MT)

Today: 20% chance of showers before noon. Partly sunny, with a high near 64. North wind at 7 mph becoming southeast.

Tonight: Partly cloudy, with a low around 47. Southeast wind between 7 and 9 mph.

Saturday: 30% chance of showers and t-storms, mainly after noon. Mostly sunny, with a high near 70. Southeast wind 8 to 14 mph, with gusts as high as 20 mph.

24-hr forecast (Williston, ND)

Today: 50% chance of showers. Mostly cloudy, with a high near 60. Southeast wind 8 to 10 mph.

Tonight: Mostly cloudy, with a low around 46. South wind 5 to 9 mph.

Saturday: 20% chance of showers and t-storms. Mostly sunny, with a high near 70. Southeast wind 5 to 8 mph increasing to 15 to 18 mph. Winds could gust as high as 24 mph.

24-hr forecast (Riverdale, ND)

Today: Showers likely, mainly before 1pm. Cloudy, with a high near 60. North wind 5 to 8 mph becoming east. Chance of precipitation is 60%.

Tonight: Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.

Saturday: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 23 mph.

24-hr forecast (Washburn, ND)

Today: Showers likely, mainly before 1pm. Cloudy, with a high near 57. East wind 6 to 8 mph. Chance of precipitation is 70%.

Tonight: Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.

Saturday: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Breezy, with a southeast wind 6 to 9 mph increasing to 17 to 20 mph. Winds could gust as high as 25 mph.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms. Cloudy, with a high near 63. Northeast wind 3 to 7 mph.

Tonight: Mostly cloudy, with a low around 46. North wind 6 to 9 mph becoming east southeast.

Saturday: 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 73. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms. Cloudy, with a high near 64. North northeast wind 3 to 7 mph.

Tonight: Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.

Saturday: 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 74. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: 20% chance of showers and t-storms. Mostly cloudy, with a high near 64. North northwest wind 3 to 8 mph.

Tonight: Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.

Saturday: Mostly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with a high near 66. North northwest wind 5 to 8 mph. Chance of precipitation is 30%.

Tonight: Mostly cloudy, with a low around 47. East northeast wind 5 to 7 mph.

Saturday: Mostly sunny, with a high near 75. East southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 28 mph.

#### 24-hr forecast (Yankton, SD)

Today: Chance of showers and t-storms, mainly before 1pm. Partly sunny, with a high near 68. North northwest wind 7 to 11 mph. Chance of precipitation is 30%.

Tonight: Partly cloudy, with a low around 50. North wind at 8 mph becoming east southeast.

Saturday: Mostly sunny, with a high near 73. East southeast wind 3 to 10 mph.



#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Showers likely, mainly before 1pm. Cloudy, with a high near 58. North wind 6 to 9 mph becoming east. Chance of precipitation is 70%.

Tonight: Cloudy, then gradually becoming partly cloudy, with a low around 44. East wind 6 to 9 mph becoming calm.

Saturday: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 71. Breezy, with a southeast wind 6 to 9 mph increasing to 18 to 21 mph. Winds could gust as high as 26 mph.

#### 24-hr forecast (Sioux City, IA)

Today: Slight chance of showers and t-storms before 1pm. Partly sunny, with a high near 70. North wind 8 to 14 mph. Chance of precipitation is 20%.

Tonight: Partly cloudy, with a low around 51. North wind at 9 mph becoming east southeast.

Saturday: Mostly sunny, with a high near 74. Calm wind becoming east northeast around 6 mph.

#### 24-hr forecast (Omaha, NE)

Today: Mostly cloudy, with a high near 72. North wind around 14 mph.

Tonight: Partly cloudy, with a low around 54. North wind at 11 mph becoming east.

Saturday: Mostly sunny, with a high near 77. East northeast wind 5 to 8 mph

Source of information:

<http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>

#### Missouri River Flooding (Logistics) (Updated 9 Jun; 0800 CDT)

##### Personnel Deployed

6 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Box Elder, MT)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
6 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
4 (Hamburg, IA)  
7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
8 (North Platte, NE)

1 (Lincoln, NE)

Equipment Deployed

HESCO (3' and 4')

Issued: 48,270 LF

On Hand: 26,435 LF

Projected Outstanding Requirements: 39,000 LF

Sandbags

Issued: 13.8 M

On Hand: 4,780,500

Projected Outstanding Requirements: 6.5 M

Poly Rolls

Issued: 2,401 rolls

On Hand: 1,691 rolls

Projected Outstanding Requirements: 1,500 rolls

Pumps

Issued: 26 pumps

On Hand: 7

Projected Outstanding Requirements: 30 pumps

Additional Supplies due in:

Sandbags: 495,000

Poly Roll: 525 rolls

Source of information: CMT Brief (9 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 10 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.4 ft msl</li> <li>24-hr Change (+0.2ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>83,000 cfs (9 Jun)</li> <li>79,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>53,600 cfs (9 Jun)</li> <li>50,700 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Peak release will be 55,000 cfs by Friday.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.2 ft msl</li> <li>24-hr Change (0.0 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>124,000 cfs (9 Jun)</li> <li>115,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>130,600 cfs (9 Jun)</li> <li>130,800 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.48 (0615 CDT 10 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.46 (0815 CDT 9 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>135,000 cfs (9 Jun)</li> <li>132,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (9 Jun)</li> <li>150,700 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.88 (0630 CDT 10 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.84 (0731 CDT 9 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.7 ft msl</li> <li>24-hr Change (+0.3 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>140,000 cfs (9 Jun)</li> <li>148,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>138,700 cfs (9 Jun)</li> <li>148,400 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1361.6 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (9 Jun)</li> <li>155,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,300 cfs (9 Jun)</li> <li>137,000 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.6 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (9 Jun)</li> <li>141,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>140,100 cfs (9 Jun)</li> <li>135,600 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 10 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  <b>Today:</b> A 20% chance of showers before noon. Partly sunny, with a high near 64. North wind at 7 mph becoming southeast.  <b>Tonight:</b> Partly cloudy, with a low around 47. Southeast wind between 7 and 9 mph.  <b>Saturday:</b> A 30% chance of showers and t-storms, mainly after noon. Mostly sunny, with a high near 70. Southeast wind 8 to 14 mph, with gusts as high as 20 mph.  <b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> A 50% chance of showers. Mostly cloudy, with a high near 60. Southeast wind 8 to 10 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 46. South wind 5 to 9 mph.  <b>Saturday:</b> A 20% chance of showers and t-storms. Mostly sunny, with a high near 70. Southeast wind 5 to 8 mph. Winds increasing to 15 to 18 mph. Winds could gust as high as 24 mph.	<b>24-hr forecast (Riverdale, ND)</b>  <b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 60. North wind 5 to 8 mph becoming east. Chance of precipitation is 60%.  <b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.  <b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 23 mph.  <b>24-hr forecast (Washburn, ND)</b>  <b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 57. East wind 6 to 8 mph. Chance of precipitation is 70%.  <b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.  <b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Breezy, with a southeast wind 6 to 9 mph increasing to 17 to 20 mph. Winds could gust as high as 25 mph.	<b>24-hr forecast (Pierre, SD)</b>  <b>Today:</b> A 20% chance of showers and t-storms. Cloudy, with a high near 63. Northeast wind 3 to 7 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 46. North wind 6 to 9 mph becoming east southeast.  <b>Saturday:</b> A 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 73. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  <b>Today:</b> A 20% chance of showers and t-storms. Cloudy, with a high near 64. North northeast wind 3 to 7 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.  <b>Saturday:</b> Mostly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  <b>Today:</b> A 20% chance of showers and t-storms. Mostly cloudy, with a high near 64. North northwest wind 3 to 8 mph.  <b>Tonight:</b> Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.  <b>Saturday:</b> Mostly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.	<b>24-hr forecast (Chamberlain, SD)</b>  <b>Today:</b> A chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with a high near 66. North northwest wind 5 to 8 mph. Chance of precipitation is 30%.  <b>Tonight:</b> Mostly cloudy, with a low around 47. East northeast wind 5 to 7 mph.  <b>Saturday:</b> Mostly sunny, with a high near 75. East southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 28 mph.	<b>24-hr forecast (Yankton, SD)</b>  <b>Today:</b> A chance of showers and t-storms, mainly before 1pm. Partly sunny, with a high near 68. North northwest wind 7 to 11 mph. Chance of precipitation is 30%.  <b>Tonight:</b> Partly cloudy, with a low around 50. North wind at 8 mph becoming east southeast.  <b>Saturday:</b> Mostly sunny, with a high near 73. East southeast wind 3 to 10 mph.

Source of information: <http://www.weather.gov>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 10 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 58. North wind 6 to 9 mph becoming east. Chance of precipitation is 70%.  <b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. East wind 6 to 9 mph becoming calm.  <b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 71. Breezy, with a southeast wind 6 to 9 mph increasing to 18 to 21 mph. Winds could gust as high as 26 mph.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> A slight chance of showers and t-storms before 1pm. Partly sunny, with a high near 70. North wind 8 to 14 mph. Chance of precipitation is 20%.  <b>Tonight:</b> Partly cloudy, with a low around 51. North wind at 9 mph becoming east southeast.  <b>Saturday:</b> Mostly sunny, with a high near 74. Calm wind becoming east northeast around 6 mph.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly cloudy, with a high near 72. North wind around 14 mph.  <b>Tonight:</b> Partly cloudy, with a low around 54. North wind at 11 mph becoming east.  <b>Saturday:</b> Mostly sunny, with a high near 77. East northeast wind 5 to 8 mph.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 9 Jun; 0800 CDT)

### Personnel Deployed

6 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Box Elder, MT)

5 (Pierre, SD)  
1 (Kansas City, MO)  
6 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
4 (Hamburg, IA)

7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
8 (North Platte, NE)  
1 (Lincoln, NE)

### Equipment Deployed

#### HESCO (3' and 4')

Issued: 48,270 LF  
On Hand: 26,435 LF  
Projected Outstanding Requirements: 39,000 LF

#### Sandbags

Issued: 13.8 M  
On Hand: 4,780,500  
Projected Outstanding Requirements: 6.5 M

#### Poly Rolls

Issued: 2,401 rolls  
On Hand: 1,691 rolls  
Projected Outstanding Requirements: 1,500 rolls

#### Pumps

Issued: 26 pumps  
On Hand: 7  
Projected Outstanding Requirements: 30 pumps

#### Additional Supplies due in:

Sandbags: 495,000  
Poly Roll: 525 rolls

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 9:24 AM  
**To:** DLL-CENWO-OD-GA; [REDACTED]  
Farhat, Jody S N [REDACTED]  
[REDACTED]  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-10 Garrison Flood Fight Daily Staff Notes.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

Today's notes are attached.

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Thursday, June 09, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.14. Yesterday's elevation: 1853.21  
Top of Exclusive Flood Control Zone: 1854.0
  - Current Tail water Elevation 1683.25. Yesterday's elevation 1683.50
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1687.5
  - Estimated Inflows 124,000 cfs, Releases: 135,000 cfs
  - Release Schedule: Went to 135,000 cfs at 8:00 am today. Increase to 140,000 cfs on Monday. Goal remains at 150,000 cfs by June 17th.
  - Spillway gates #'s 1-7 and 21-28 are open one foot. Gate #'s 8-20 are open approximately 2 feet.
  - Current release distribution: Power Plant - 15,000 cfs, Regulating Tunnels – 75,500 cfs, Spillway – 44,500 cfs.
- Fort Peck Releases are going to 60,000 cfs today and are scheduled to remain at that level.
- Missouri River Elevations:
  - Bismarck gage: Currently 17.48 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 28.33 feet, forecasted to go to 29.4 feet by Tuesday. Previous record stage: 28.0 feet.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED], cell: [REDACTED])
  - No major issues reported.
  - Rock repairs on the tailrace appear to be holding, we'll continue to monitor both banks.
  - Surveillance crews are now split. Day shift working from 0500 to 1500; Night shift from 1400-2400. We will have a daily shift change meeting at 1400 hours.
  - Current 3-week forecast shows Garrison pool exceeding 1854.4 by three tenths in July. This would be a new record pool elevation which would require that we go back to 24 hour surveillance. We will continue to monitor the forecast.
- Instrumentation (Team Leader [REDACTED], cell: [REDACTED])
  - No issues reported.
- Conservancy District wrapped up stabilization of right and left banks on the tailrace. POC, [REDACTED], cell [REDACTED]

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No major issues reported.



- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED] cell: [REDACTED] or [REDACTED] cell: [REDACTED]
- The boils at Williston are still flowing clear water. Some additional small pin boils have been located, but nothing of concern at this time.
- Trying to expedite contracting action to get a contractor in to improve the toe road, so it's available if needed.
- [REDACTED] is pursuing installation of oil coolers for the hydraulic fluid on the new pumps.

#### **Natural Resources:**

- POC's [REDACTED] cell: [REDACTED]
- East Diagonal road staffed from 6:00 am until 8:00 pm. West Diagonal will remain closed. All employees are to an orange tag with license plate number by Tuesday, June 14<sup>th</sup> for access below the dam. All government vehicles working around the dam should have magnetic USACE Emergency Management placards and/or light bars.
- NR's will be providing Visitor Assistance at the Spillway overlook weekdays, from 8:30 am to 8:00 pm, and weekends from 8:00 am until 10:00 pm. Hours may vary dependent upon weather and actual visitation.
- East diagonal gate will only be staffed from 0600-0800 hours on Saturday and Sunday. Employees will need to utilize keys for access.
- Still working "fact sheet" for visitation. Goal is to have that to NR's by close of business today.
- The body of the drowning victim at Hofflund Bay has been recovered. [REDACTED] is working the reports to Omaha.

#### **Outside Maintenance:**

- Everyone needs to be aware that the temporary water line installed across the spillway bridge and down the East side of the dam (West of the spillway area) is now operational. Any signs of leakage in this line must be reported immediately. Notify your supervisor, [REDACTED] or I. Also need to notify the City of Riverdale, call "Clay" at (701) 471-6433 or [REDACTED]. There are shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.
- Installed a drain tile with filter fabric and placed spalls to repair the area which eroded at the west wing-wall of regulating tunnel #8. They will add sandbags further up along the wall to preclude further erosion from wave action.
- Making repairs and blading access roads needed for inspections and instrumentation readings.

#### **Power Plant:**

- Still having some issues with the camera to monitor the spillway.
- WAPA has requested that we reduce power generation over the weekend. We are currently running two units and making the releases up via the spillway and regulating tunnels.
- Unit 5 start up will not occur today as scheduled.

#### **Weather/Safety:**

Today for Riverdale: Overcast with rain showers at times. High around 60F. Winds E at 5 to 10 mph. Chance of rain 40%	Tonight for Riverdale: A few showers early, then clear overnight. Near record low temperatures. Low 43F. Winds light and variable. Chance of rain 30%.	Tomorrow: Sunny, along with a few afternoon clouds. High 67F. Winds SSE at 10 to 20 mph.
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- [REDACTED] have volunteered to work on evacuation plans. I will coordinate with them as soon as I get a chance.

#### **Needed Resources:**

- Still working the staffing plan, it is not as easy as I'd hoped due to the constant turnover in support from the District...
- [REDACTED] ordered six additional "Road Closed" signs, stands, lights and extra batteries.
- [REDACTED] working to quantify amount of rock needed to replenish emergency stockpiles.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell [REDACTED])

[REDACTED] Home: [REDACTED].

#### **OPM Notes:**

- We have already had three vehicle accidents while driving off road. Although damage has been relatively minor, this needs to stop! These accidents are preventable. Take your time and know where you are driving. Use spotters when needed...
- Flood team meetings every morning at 0700 hours in the Outside Maintenance Building.
- If you are asked questions by the public and do not know the answer, do NOT guess. Take a name and number and tell them I will get back to them. A recent article published in the St. Louis Dispatch questioned the integrity of the main stem dams and has caused a lot of consternation. I can talk about the integrity of our dam and our dam safety program and have requested Public Affairs to get a story out to address this issue.

#### **Garrison Project Facts:**

- Top of Spillway Gates is elevation 1854 msl.
- Top of Dam is elevation 1875 msl.
- Exclusive flood control zone is elevation 1850-1854. We try to evacuate water from that zone as quickly and safely as possible.

**From:** matt bunk [bunk.matt@gmail.com]  
**Sent:** Friday, June 10, 2011 8:32 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Interview with Jody Farhat (UNCLASSIFIED)

Thanks, Jody. How about 2 p.m.?  
-Matt

On Fri, Jun 10, 2011 at 6:07 AM, Farhat, Jody S NWD02 <[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bunk,

I would be happy to visit with you regarding the operation of the reservoir system per your request in an email to Kevin Wingert yesterday.

I'm available from 9-10 this morning or 2-3 this afternoon. Let me know what time would work best for you.

Thanks,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 8:26 AM  
**To:** CENWO-FOC NWO; Williamson, Eileen L NWO; [REDACTED]  
**Cc:** [REDACTED] Farhat, Jody S  
**Subject:** RE: Mainstem data for NWO sitrep 6/10/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/9 Pool Elev: 2251.4 ft-msl

24-hr change: 0.2'

6/9 Ave Inflow: 83,000 cfs

6/9 Ave Release: 53,600 cfs

6/10 Scheduled Release: 60,000 cfs

Garrison Dam (ND)

6/9 Pool Elev: 1853.2 ft-msl

24-hr change: 0.0

6/9 Ave Inflow: 124,000 cfs

6/9 Ave Release: 130,600 cfs

6/10 Scheduled Release: 135,000 cfs

Oahe Dam (SD)

6/9 Pool Elev: 1618.8 ft-msl

24-hr change: -0.1'

6/9 Ave Inflow: 135,000 cfs

6/9 Ave Release: 150,500 cfs

6/10 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/9 Pool Elev: 1419.7 ft-msl

24-hr change: 0.3'

6/9 Ave Inflow: 140,000 cfs

6/9 Ave Release: 138,700 cfs

6/10 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/9 Pool Elev: 1361.6 ft-msl

24-hr change: 0.2'

6/9 Ave Inflow: 148,000 cfs

6/9 Ave Release: 136,300 cfs

6/10 Scheduled Release: 140,000 cfs

Gavins Point Dam (NE-SD)

6/9 Pool Elev: 1207.6 ft-msl

24-hr change: 0.4'

6/9 Ave Inflow: 146,000 cfs

6/9 Ave Release: 140,100 cfs

6/10 Scheduled Release: 145,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**Subject:** Phone Interview with Bill Lambrecht, St. Louis Dispatch (UNCLASSIFIED)  
**Location:** COL Ruch's Office

**Start:** Fri 6/10/2011 2:00 PM  
**End:** Fri 6/10/2011 3:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Ruch, Robert J COL NWO  
**Required Attendees:** Farmer, Monique L NWO; Farhat, Jody S NWD02; Bertino, John J Jr NWO

**Importance:** High

Classification: UNCLASSIFIED

Caveats: NONE

POC: Monique

Can you find out whether Col. Ruch can take a print interview with the St. Louis Dispatch. The reporter, Bill Lambrecht has called and said he wants to follow-up on quotes Col. Ruch has provided during the nightly press conference calls. MRJIC call center did not provide specific subject matters, but the hot topics have been whether the Corps released water soon enough, the safety of the dams following an editorial in the St. Louis Dispatch that suggested otherwise and the potential for more levee breaches following Hamburg.

If it will work for his calendar, please send me a meeting request and I will join the Col. to facilitate.

Info on reporter below (for Col. Ruch)

\*\*\*

Bill Lambrecht of STL Post Dispatch Bio  
St. Louis Post-Dispatch - Washington DC Bureau  
Address 236 Maryland Avenue, Apartment A, Washington, DC 20002-5753 - UNITED STATES  
Phone (202) 298-6880  
Fax (202) 342-1858

#### EDITORIAL PROFILE/BACKGROUND

The Washington DC bureau of the St. Louis Post-Dispatch covers U.S. senators and representatives from the states of Missouri and Illinois and any other news from the nation's capital.

#### OUTLET STATISTICS

Circulation/Audience: 210,000

Weekend Circulation/Audience: 421,022

Mr. Bill Lambrecht is the Washington bureau chief of the St. Louis Post-Dispatch. In the past, he has written predominantly about the environment and natural resources, but he now primarily focuses on covering federal government and politics. He has recently written "Presidential hopeful Clinton wins, still in it," "Conservatives: McCain must boost right-wing appeal" and "Clinton will need support of women to keep hope alive." Lambrecht prefers to receive relevant press releases and story ideas via e-mail and accepts high-resolution photos and attachments.

Lambrecht has been with the Post-Dispatch since 1983.

In 1999, he was awarded his third Raymond Clapper Prize for Washington reporting for his articles on genetic engineering from around the world. He has also won the Sigma Delta Chi Award for journalism.

He is the author of "Big Muddy Blues" and "Dinner at the New Gene Café."

He lives near Annapolis, Maryland.

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED]

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**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 10, 2011 7:04 AM  
**To:** Farmer, Monique L NWO  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Subject:** Re: Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Thanks, Monique--will get to you with some edits today.  
Vr/John McMahon

----- Original Message -----

**From:** Farmer, Monique L NWO  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Austin-Smith, Christina A NWD; Hargrave, Rosemary C NWD02; Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Sent:** Thu Jun 09 17:54:43 2011  
**Subject:** Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sir:

Per your request, I have attached a draft version of the Op-Ed piece on the Master Manual for circulation in newspapers this weekend--aiming for Sunday circulation in the major dailies throughout the region.

Please edit and return to me at your convenience and I will distribute.

Very respectfully,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** Hofmann, Anthony J COL NWK  
**Sent:** Friday, June 10, 2011 12:55 AM  
**To:** McMahon, John R BG NWD  
**Cc:** DLL-NWK-SITREP  
**Subject:** NWK Weekly SITREP, 3 - 9 Jun 2011 (UNCLASSIFIED)

BG McMahon-

Sir,

The Kansas City District continues to excel while balancing numerous challenges impacting many U.S. citizens as we lead the Joplin, Missouri area post-tornado recovery efforts as well as the lower Missouri River Basin flood-fighting efforts. We continue these priorities while executing our FY 11 program and executing AED Reach back.

This week the District also hosted the [REDACTED] on Monday and Tuesday. Monday's focus was on the Kansas City Metro flood damage reduction projects as well as a full tour and briefings in our Emergency Operations Center displaying ongoing activities. We also filmed a short video supporting the American Great Outdoors initiative at Longview Lake. Tuesday's agenda included Kansas Governor Brownback and his Water Management staff, focusing on the Missouri River Recovery Program as well as ongoing efforts with respect to sediment impacts within our reservoirs. Following a tour and briefings at Perry Lake, the visit ended with an aerial overview of the Topeka levees. All in all a great visit!

We continue to build momentum in our Recovery Field Office in Joplin, Missouri. We currently have 168 personnel in the RFO. Our debris mission now has over 400 trucks collecting debris, with daily totals clearing 40,000 cy of vegetative and construction/demolition debris. Other FEMA mission assignments include: Critical Public Structures (fire stations, hospital), Schools and Temporary Housing. We appreciated the efforts of NWW's LTC Haines who filled in admirably as the deputy in the RFO for a short time!

On Friday, I'll be joining Witt Anderson, [REDACTED] and [REDACTED] representing you in our meeting with Congressman Sam Graves and Congresswoman Lynn Jenkins, as well as elected officials of St. Joseph, Elwood, KS and other smaller communities south of Rulo, NE to the St. Joseph reach of the river. I'll keep you apprised of the results of the meeting. Prior to this meeting I'll be hosting the District's annual Organization Day at Longview Lake. A noteworthy award includes the induction of a District employee into the Distinguished Gallery of District Employees.

[REDACTED] and [REDACTED] met with Holt County officials and Forest City Levee District on their plight of the upcoming flooding situation as well as discussions regarding the removal of Forest City Levee District being removed from the PL84-99 program.

Report follows:

A. NWK Top Issues:

1. [REDACTED] District Visit - NWK hosted [REDACTED] for a two day tour of district civil works projects, the on-going district Emergency Management Operations in support of the recovery of Joplin, MO and Missouri River flood fight, and a meeting with the Governor of Kansas, Sam Brownback and State directors of water resource and wildlife and parks departments. [REDACTED] was able to observe critical Kansas City metro FRM project, Missouri River ecosystem restoration projects and current flood

conditions above Kansas City. The [REDACTED] was transferred to Tulsa District in the continuance of [REDACTED] tour of Tulsa and Little Rock Districts.

2. Joplin Recovery Mission: NWK has many contract actions we are processing in support of the Joplin Recovery Mission. The majority of the initial requirements needed to stand up the RFO in Joplin have been awarded. Contracts for janitorial services, electrical repairs and upgrades, supplies, furniture and dumpsters have all been awarded in support of the RFO. NWK Chief CT-H is currently deployed to Joplin acting as Chief of the RFO. Requirements in direct support of the clean-up mission have been received for the following contract actions: debris removal, debris processing sites, abandon vehicles removal, landfill services, HAZMAT segregation, debris tracking system and three critical infrastructure requirements (fire station, school and a temporary hospital). NWK has one contract specialist from NWP that has reported to assist with this mission. Currently, several NWK contract specialists have been re-assigned from their normal workload to work contracts in support of the Joplin Recovery Mission. DCC is working with the RCC to obtain additional contracting assets.

3. NWD-RE has agreed to a purchase price for the Bootlegger Bend property. NWK-RE-C is moving forward with the acquisition process. NWK appreciates the assistance NWD RE staff provided on getting this action moving forward.

B. NWD Assistance Required: None.

C. Deployment Stats:

Currently have 1.86% deployed to AED  
14 AED - 7 on taskers waiting to deploy Other  
03 GRD  
02 OCO  
19 Total employees deployed outside of the district 2.20%  
11 Reach back support  
07 deployed reservist  
37 Total employees support OCO efforts 4.29%  
12 schedule A

D. DE Looking Ahead:

- 13-14 Jun NWK PRB's
- 15-16 Jun Hydropower Conference (Kansas City, MO)
- 22-23 Jun Ft. Leonard Wood & Speaker at AEA Breakfast
- 27 Jun Smithville Lake Tour
- 28-29 Jun RCC (Portland, OR)
- 30 Jun NWP Change of Command
- 1-10 July DE Annual Leave
- 23-25 Jul Regional SAME (Kansas City)
- 26-28 Jul MRRIC Meeting (Denver)
- 27-29 Jul RMB/RCC Meeting (Seattle)
- 29 Jul NWS Change of Command

V/r,

Tony

Building Strong!

Colonel Anthony J. Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers



[REDACTED] NWO

From: [REDACTED]  
Sent: Saturday, June 11, 2011 7:35 PM  
To: [REDACTED]  
Cc: Farhat, Jody S NWD02 [REDACTED]  
Subject: RE: FW: 'normal' dam release questions - Navigation Release Portion Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
I am going to defer the question to Jody Farhat, [REDACTED] and [REDACTED] or a Water Management Official Answer.

My understanding is that there is no specific storage amount allocation for Navigation. Likewise there is no specific storage allocation for Hydropower, Water Supply or any of the other project purposes.

The system is operated as a multipurpose system.

Other than during flood operations, which have operational precedence, when water goes through outlet works or spillway gates, the system normally operates with all the releases going through the hydropower turbines. Any flows set for navigation during a normal 8 month navigation season (April 1 thru 30 November) also goes through the hydropower turbines creating power for the Missouri River Basin. All the other purposes also pass through the turbines.

What some folks will be doing during and after the flood of 2011 is to second guess how we operate. They will look at navigation wanting its purpose to disappear. They will want to update the Master Manual etc and etc.

Let's say during normal navigation operations to support the eight month season compared with just operating for water supply we could release only 18,000 cfs compared to 28,000 cfs. That would end up being about 5 million acre feet of storage used for navigation.

Then they would say we could lower the March 1 pool from 54 million acre feet to 49 million acre feet providing more flood control. But you would be losing a substantial amount of hydropower, and water supply could suffer further reductions earlier in an extended drought; this will be a huge economic number.

Looking at the flood of 2011 forecasted at 54.6 million acre feet (1Jun11 estimate) passing Sioux City, the 5 million acre feet advantage would help a little, but the damage would still be nearly the same. Oh and with 71 million acre feet in the reservoirs as of today, the 5 million acre feet reduction would barely help the flood operation.

We must be accurate answering this question to the public so that it is in line with how we operate the system, per the Master Manual, the various acts and the law.

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 6:02 PM  
To: [REDACTED]  
Subject: FW: FW: 'normal' dam release questions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Can you help me answer this?

-----Original Message-----

From: [REDACTED] [mailto:[REDACTED]]  
Sent: Saturday, June 11, 2011 3:57 PM  
To: [REDACTED]  
Subject: Re: FW: 'normal' dam release questions (UNCLASSIFIED)

I thank you for your help on this but what I was looking for was the answer to this question. How much water is held in the dams to support Navigation down stream? Basically what % of the volume held is for navigation down stream?

Again I thank you guys for your efforts.

In a message dated 6/11/2011 3:08:07 P.M. Central Daylight Time,  
[REDACTED] writes:

<http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/finalAOP2010-2011.pdf>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 6:35 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** USACE News: Fort Peck to increase levels to 65,000 cfs

U.S. Army Corps of Engineers  
Omaha District

News Release

Release No: Fort Peck PA-04  
Contact Diana Fredlund, (406) 526-3411 Ext. 4285  
Cell: (406) 526-7308 For Release: June 11, 2011

**FORT PECK TO INCREASE RELEASE LEVELS TO 65,000 CFS**

Fort Peck, Mont. – The U.S. Army Corps of Engineers' Fort Peck Dam will increase releases to 65,000 cubic feet per second (cfs) Saturday. The project released 60,000 cfs today and Fort Peck Reservoir reached 2251.6 feet mean sea level today, equaling the previous record set in 1975.

"Inflows at Fort Peck remain well above previously forecasted levels for the next six to eight days," said Jody Farhat, Chief of the Missouri River Water Management office. "As a result, releases at Fort Peck will be increased to better balance the flood storage between Fort Peck and Garrison."

The Fort Peck releases should not affect planned peak releases at the other five Missouri River dams, Farhat said.

"River levels are very high and we encourage residents living downstream to closely monitor the situation and take appropriate action if necessary," said John Daggett, Fort Peck Project Manager.

Heavy rain and melting of historic levels of snowpack over the Northwestern Division area have raised water levels of rivers and reservoirs. Portions of Montana received nearly a year's worth of rain last month, nearly filling the reservoirs.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at [MRJIC@usace.army.mil](mailto:MRJIC@usace.army.mil)

Please follow us on Facebook ([www.facebook.com/OmahaUSACE](http://www.facebook.com/OmahaUSACE)), ([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)), YouTube ([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at <http://www.nwo.usace.army.mil>. View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at <http://nwd-mr.usace.army.mil/rcc>.

-END-

If you would rather not receive future communications from U.S. Army Corps of Engineers,  
please go to [http://USACEARMY.pr-  
optout.com/OptOut.aspx?520028x24691x317904x3x1875268x24000x6](http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317904x3x1875268x24000x6) [REDACTED]

U.S. Army Corps of Engineers, [REDACTED] in: CENWO-PA, Omaha, NE 68102 United States





BUILDING STRONG®

# NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

Release No: Fort Peck PA-04  
For Immediate Release: June 25, 2011

Contact: [REDACTED]

[diana.j.fredlund@usace.army.mil](mailto:diana.j.fredlund@usace.army.mil)

## FORT PECK TO INCREASE RELEASE LEVELS TO 65,000 CFS

**Fort Peck, Mont.** – The U.S. Army Corps of Engineers' Fort Peck Dam will increase releases to 65,000 cubic feet per second (cfs) Saturday. The project released 60,000 cfs today and Fort Peck Reservoir reached 2251.6 feet mean sea level today, equaling the previous record set in 1975.

"Inflows at Fort Peck remain well above previously forecasted levels for the next six to eight days," said Jody Farhat, Chief of the Missouri River Water Management office. "As a result, releases at Fort Peck will be increased to better balance the flood storage between Fort Peck and Garrison."

The Fort Peck releases should not affect planned peak releases at the other five Missouri River dams, Farhat said.

"River levels are very high and we encourage residents living downstream to closely monitor the situation and take appropriate action if necessary," said John Daggett, Fort Peck Project Manager.

Heavy rain and melting of historic levels of snowpack over the Northwestern Division area have raised water levels of rivers and reservoirs. Portions of Montana received nearly a year's worth of rain last month, nearly filling the reservoirs.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at [MRJIC@usace.army.mil](mailto:MRJIC@usace.army.mil)

Please follow us on Facebook ([www.facebook.com/OmahaUSACE](http://www.facebook.com/OmahaUSACE)), ([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)), YouTube ([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at <http://www.nwo.usace.army.mil>. View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at <http://nwd-mr.usace.army.mil/rcc>.

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**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**11 June 2011**

We posted the updated reservoir forecast to the web this afternoon. There one adjustment to planned releases.

Inflows into Fort Peck have remained very high due to the rain earlier this week and the reservoir level continues to climb. Today the pool tied the previous record when it reached 2251.6 feet. As a result, releases from Fort Peck will be increased tomorrow to 65,000 cfs, 5,000 cfs above the current release rate. This will allow us to better balance the remaining flood storage in Fort Peck and Garrison. This change will not impact the planned peak releases from the remaining 5 dams. Peak releases at Garrison, Oahe, Big Bend, Fort Randall and Gavins Point remain at 150,000 cfs.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases 60,000 cfs today and will be increased to 65,000 cfs tomorrow.
- Garrison –135,000 cfs today, holding that release on Sun, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, and gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 145,000 cfs today, holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change

**NWO**

**From:** Steven M Robinson [smrobins@usgs.gov]  
**Sent:** Saturday, June 11, 2011 4:24 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]; Thomas, Kimberly S NWO; [REDACTED]  
[REDACTED]  
gjwiche@usgs.gov; Bradley A Sether; smrobins@usgs.gov; Robert B Swanson; [REDACTED]  
**Subject:** Below Garrison discharge measurement for June 11

Measurement was made further downstream than previous - location ; Lat 47.38 Long 101.38

discharge measurement today@ 1326  
Q=138,800 cfs  
width = 1,310 ft  
max depth 39.2 ft  
max velocity about 9.5 fps  
mean velocity about 5.6 fps

\*\*\*\*\*  
Steven M. Robinson  
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S.  
Geological Survey office 701-250-7404 cell 701-220-6309  
\*\*\*\*\*

[REDACTED] NWO

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 3:56 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** FW: Questions from 11 Jun Bismarck Mayor's Missouri River Update (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Paul and Jody:

I believe we have answers for both of the Commissioner Armstrong's questions but wanted you to know why we have called and emailed.

Burleigh County Commissioner Mark Armstrong made a presentation this morning at the Bismarck Mayor's Missouri River Update and asked a couple of questions. Here is a link to the 11 Jun update (Commissioner Armstrong's presentation toward the end):

<http://www.dakotamediaaccess.org/channel2/program-information/other-programs/special-meetings/>

1. There was a post last night on Facebook around 2200 that had Jody's quote about releases and schedule. Here is that post: (approx. 2200 on 10 Jun 11)

US Army Corps of Engineers, Omaha District "I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August." Jody Farhat, Chief Mo. River Basin Water Mgt

<http://www.facebook.com/pages/Fort-Worth-District-US-Army-Corps-of-Engineers/188083711219308#!/OmahaUSACE>

Major concern was on the wording "currently anticipated".

2. Why was the page that used to show future releases removed? Not sure which page he is referring and have emails and phone messages asking for clarification. This page is still accessible <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Are you aware if any pages that the Corps has recently taken down or changed concerning river forecast?

[REDACTED]  
Public Affairs Specialist  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

From: [REDACTED]  
Sent: Saturday, June 11, 2011 2:54 PM  
To: Farhat, Jody S NWD02  
Cc: [REDACTED]  
Subject: FW: Media Query: Columbia Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Can you, Mike and Kevin provide us some assistance in getting these questions answered? See below.

V r,

[REDACTED]  
----- Original Message -----

From: Keller, Rudi <[rjkeller@columbiatribune.com](mailto:rjkeller@columbiatribune.com)>  
To: [REDACTED]  
Sent: Fri Jun 10 21:02:48 2011  
Subject: Information


[REDACTED]  
I would like the following information:

1. The inflow, in acre-feet or any other convenient measure, for each of the six Missouri River dams during from Sept. 1 through May 30, such as average CFS inflow rate over each month.
2. The pool level of each lake on the first day of each month and the pool level on May 30.
3. Average monthly precipitation for each in each lake watershed expressed as a percentage of normal.
4. Watershed Snowpack as a percentage of normal and average of the past 10 years. How much of this snowpack has yet to melt? Expected inflow at maximum melt? How long will the maximum melt continue?
5. The minimum inflow point since Sept. 1. I would like a system-wide date, with flows into each lake, as well as a low inflow date for each lake if different.
6. Average daily release rate at Gavins Point Dam for each of the last nine months.
7. Minimum release rate for Gavins Point Dam, per Master Manual. If the Master Manual has different rates for different dates, please include all and the dates covered by the rate directives.
8. Dates and time periods in the last nine months when release rates were at or below minimum set in Master Manual. Please explain.

9. Lake action levels. Such as, at 2230 feet elevation, Fort Peck releases are reduced to a particular CFS rate. Or, at 1422 feet, Big Bend releases 50,000 CFS.

10. Have the dams ever operated as a single unit as they are at this time? In other words, have the dams releases ever been coordinated so that five of the six match each other to control a flood?

11. Is it possible to calculate the maximum flow rate in the past nine months that would have been occurring at Gavins Point absent the six upstream dams?

 know this is a long list. I'll call on Monday.

RUDI KELLER  
Columbia Daily Tribune  
(573) 815-1709 (office)  
(573) 382-6583 (mobile)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:45 PM  
**To:** [REDACTED]  
**Subject:** FW: Riverwatch June 11, 2011 #2011MoRivFlood (UNCLASSIFIED)  
**Attachments:** 611NR-RIVERWATCH6-11.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:47 PM  
**To:** [REDACTED]  
**Subject:** Riverwatch June 11, 2011 #2011MoRivFlood

Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

- \* 2251.5 ft msl
- \* 24-hr Change (+0.2ft)

Daily Avg. Inflow

- \* 81,000 cfs (10 Jun)
- \* 83,000 cfs (9 Jun)

Daily Avg. Release

- \* 58,900 cfs (10 Jun)
- \* 53,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

- \* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 60,000 cfs on 11 June.
- \* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)

- \* 2251.6 msl (1975)

Record Flow (Year)

- \* 35,000 cfs (1975)

Projected Record Flow (Date)

- \* 60,000 cfs (Mid June)



Garrison (In operation since 1955)

Midnight Elevation

- \* 1853.1 ft msl
- \* 24-hr Change (-0.1 ft)

Daily Avg. Inflow

- \* 125,000 cfs (10 Jun)
- \* 124,000 cfs (9 Jun)

Daily Avg. Release

- \* 133,500 cfs (10 Jun)
- \* 130,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

- \* 1854 ft msl

River Stage (Bismarck)

- \* 17.51 (0715 CDT 11 Jun)
- \* Flood stage - 16 ft
- \* 17.48 (0615 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)

- \* 1854.8 msl (1975)

Record Flow (Year)

- \* 65,000 cfs (1975)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Oahe (In operation since 1962)

Midnight Elevation

- \* 1618.8 ft msl
- \* 24-hr Change (-0.1 ft)

Daily Avg. Inflow

- \* 132,000 cfs (10 Jun)
- \* 135,000 cfs (9 Jun)

Daily Avg. Release

- \* 150,500 cfs (10 Jun)
- \* 150,500 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

\* 1620 ft msl

River Stage (Pierre)

\* 18.9 (0715 CDT 11 Jun)

\* Flood stage - 15 ft

\* 18.88 (0630 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

\* Releases have been stepped up to 150,000 cfs.

\* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

\* 1618.7 msl (1995)

Record Flow (Year)

\* 59,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

\* 1419.8 ft msl

\* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

\* 148,000 cfs (10 Jun)

\* 140,000 cfs (9 Jun)

Daily Avg. Release

\* 147,000 cfs (10 Jun)

\* 138,700 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

\* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

\* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1362.0 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 156,000 cfs (10 Jun)

\* 148,000 cfs (9 Jun)

Daily Avg. Release

\* 136,900 cfs (10 Jun)

\* 136,300 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.8 ft msl

\* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

\* 146,000 cfs (10 Jun)

\* 146,000 cfs (9 Jun)

Daily Avg. Release

\* 143,400 cfs (10 Jun)

\* 140,100 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information: <http://www.nwd-mr.usace.army.mil/rcc> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340649x390501>>

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

24-hr forecast (Glasgow, MT)

Today: Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.

Tonight: Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.

Sunday: Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.

24-hr forecast (Williston, ND)

Today: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

24-hr forecast (Riverdale, ND)

Today: Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Washburn, ND)

Today: Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.

Tonight: 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.

Tonight: Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.

Sunday: Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.

#### 24-hr forecast (Yankton, SD)

Today: Sunny, with high near 72. North wind 6 to 8 mph becoming east.

Tonight: Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Sioux City, IA)

Today: Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.

Tonight: Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Omaha, NE)

Today: Mostly sunny, with high near 76. North wind around 7 mph becoming east.

Tonight: 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340648x1731896>>

Internet: <http://www.nwo.usace.army.mil> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340647x1212614>>

Facebook: <http://www.facebook.com/OmahaUSACE> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340646x693332>>

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<<http://us.vocuspr.com/Url.aspx?520028x1340650x909782>>

If you would rather not receive future communications from U.S. Army Corps of Engineers Omaha District, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317901x3x1874483x24000x6&E>> [REDACTED]

[REDACTED] U.S. Army Corps of Engineers Omaha District, 1 [REDACTED] Omaha, NE 68102 United States

Classification: UNCLASSIFIED

Caveats: NONE



US Army Corps  
of Engineers  
Chattanooga District

## Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.5 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>81,000 cfs (10 Jun)</li> <li>83,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>58,900 cfs (10 Jun)</li> <li>53,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 60,000 cfs on 11 June.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>125,000 cfs (10 Jun)</li> <li>124,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>133,500 cfs (10 Jun)</li> <li>130,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.51 (0715 CDT 11 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.48 (0615 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (10 Jun)</li> <li>135,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (10 Jun)</li> <li>150,500 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.9 (0715 CDT 11 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.88 (0630 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (10 Jun)</li> <li>140,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>147,000 cfs (10 Jun)</li> <li>138,700 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1362.0 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>156,000 cfs (10 Jun)</li> <li>148,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,900 cfs (10 Jun)</li> <li>136,300 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.8 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (10 Jun)</li> <li>145,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>143,400 cfs (10 Jun)</li> <li>140,100 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>





US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b> <b>Today:</b> Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%. <b>Tonight:</b> Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%. <b>Sunday:</b> Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b> <b>Today:</b> Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph. <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>24-hr forecast (Washburn, ND)</b> <b>Today:</b> Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Pierre, SD)</b> <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph. <b>24-hr forecast (Ft. Pierre, SD)</b> <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.	<b>24-hr forecast (Lower Brule, SD)</b> <b>Today:</b> Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph. <b>Tonight:</b> 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.	<b>24-hr forecast (Chamberlain, SD)</b> <b>Today:</b> Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph. <b>Tonight:</b> Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%. <b>Sunday:</b> Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b> <b>Today:</b> Sunny, with high near 72. North wind 6 to 8 mph becoming east. <b>Tonight:</b> Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%. <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

Source of information: <http://www.weather.gov>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Oshkosh	Big Bend	Fort Randall	Gawins Point
<b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.  <b>Tonight:</b> Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly sunny, with high near 76. North wind around 7 mph becoming east.  <b>Tonight:</b> 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

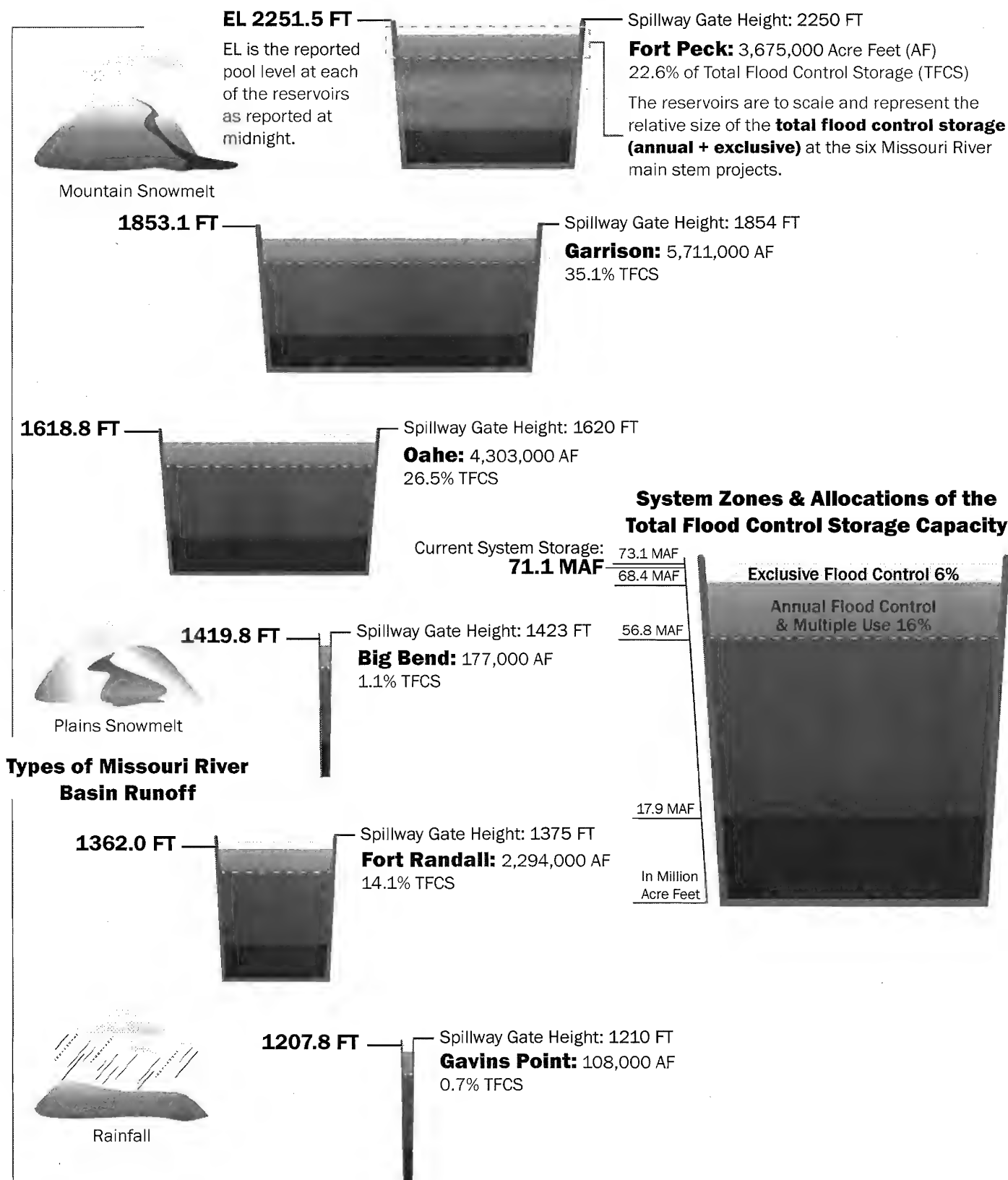
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# Missouri River Main Stem Reservoir System

**Midnight Elevation (EL) Forecast: June 11, 2011** (feet above mean sea level)



[REDACTED] NWO

From: [REDACTED]  
Sent: Saturday, June 11, 2011 2:31 PM  
To: [REDACTED]  
Cc: [REDACTED] Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
Subject: RE: Fort Peck Spillway June 10,2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I should have added that flows were about 47,000 cfs yesterday through the spillway.

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 1:21 PM  
To: [REDACTED] Farman, Jody L NWO  
Cc: [REDACTED] Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
Subject: Fort Peck Spillway June 10,2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All:

Western Area Power took this picture yesterday while they were doing their line patrols.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:21 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody  
S NWD02; [REDACTED]  
[REDACTED]  
**Subject:** Fort Peck Spillway June 10,2011 (UNCLASSIFIED)  
**Attachments:** Fort Peck Spillway June 10,2011.JPG

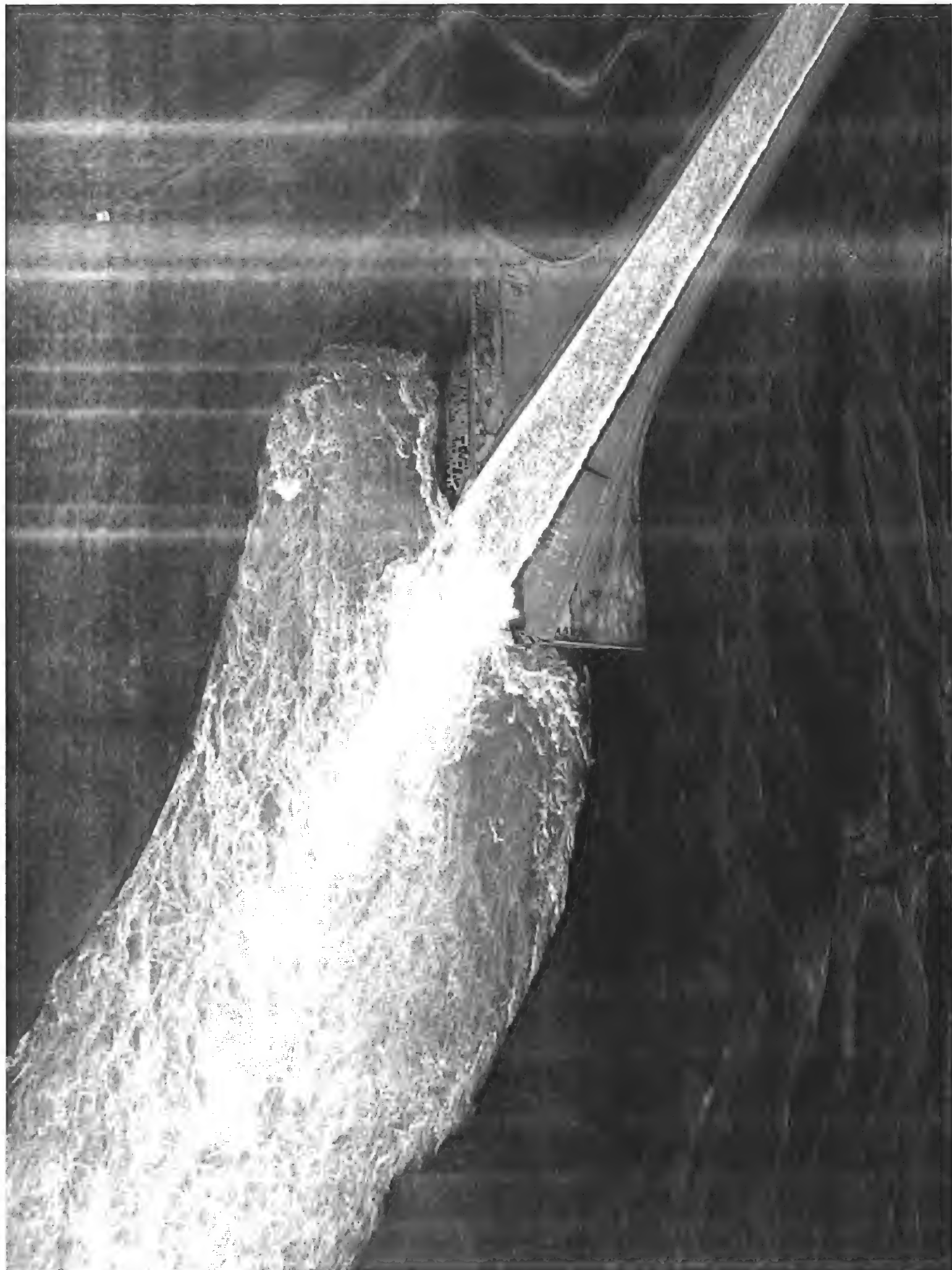
Classification: UNCLASSIFIED  
Caveats: NONE

All:

Western Area Power took this picture yesterday while they were doing their line patrols.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:10 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Missouri River at Yankton Measurement

From Roger Haschemeyer with USGS, flow measurement on Missouri River at Yankton is as follows:

Missouri River at Yankton

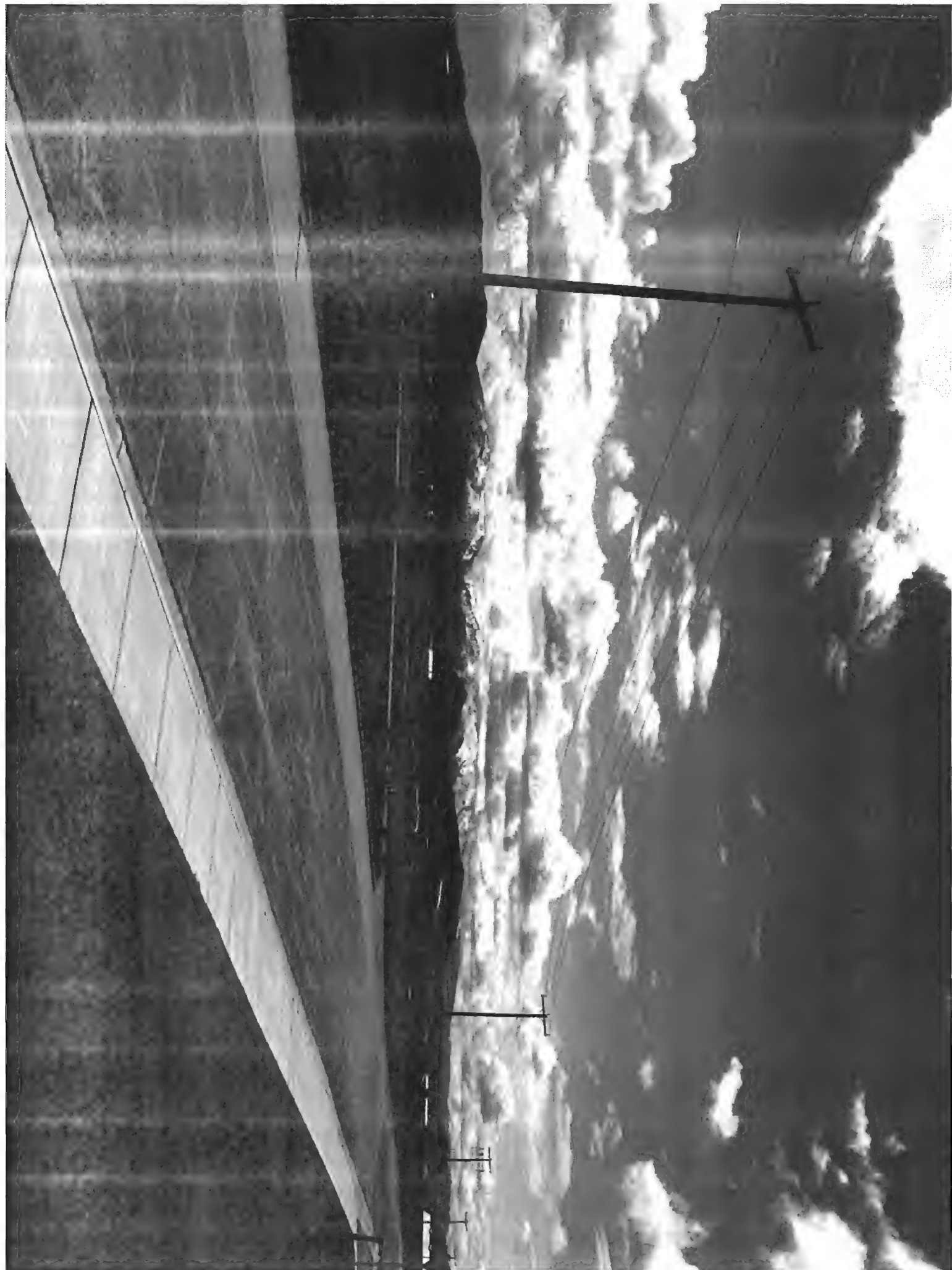
Date/Time 06-11-2011 @ 1310  
Gage Height 24.30  
Discharge 142,600 cfs  
Mean Velocity 5.02 ft/sec  
Air temp. 22.5  
Water temp. 17.3

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED]  
[REDACTED]







[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 1:26 PM  
**To:** [REDACTED] Ruch, Robert J COL NWO; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FLOOD Col. Ruch's Op-Ed letter (UNCLASSIFIED)  
**Attachments:** NR RUCH OP ED 6-11-11 (FINAL).docx

Classification: UNCLASSIFIED

Caveats: NONE

Col. Ruch--Final version for your file

[REDACTED] Please post

Classification: UNCLASSIFIED

Caveats: NONE



**U.S. ARMY CORPS OF ENGINEERS**

**BUILDING STRONG®**

# **NEWS RELEASE**

For Immediate Release: June 25, 2011

Contact: Joint Information Center 402-996-3877

[mrjic@usace.army.mil](mailto:mrjic@usace.army.mil)

## **Col. Ruch: Upper Missouri dams safe, functioning, operating as designed**

**By Col. Robert J. Ruch  
Commander, Omaha District  
U.S. Army Corps of Engineers**

The U.S. Army Corps of Engineers is engaged in an epic flood fight. For the last few months, we have focused on managing heavy inflows caused by record snowpack and rainfall in the Upper Missouri River basin. On May 1, the Corps projected summer releases of 57,500 cubic feet per second from Gavins Point Dam and were on schedule to evacuate the runoff from the record snowpack.

Then storms dumped eight inches of rain over Montana and North Dakota and changed the entire scenario. We will be managing these and subsequent inflows for the next several months as record runoff surges through the main stem system.

As Commander of the Omaha District U.S. Army Corps of Engineers, I assure you that we make public safety our number one priority. We are also intensely focused on providing the public with timely, accurate and useable information.

In today's information age, we are confronted with reported assertions that are inaccurate and may induce fear and uncertainty without merit. Such assertions published and circulated in the past few weeks would have the public believe that the main stem dam system on the Upper Missouri could fail.

I disagree with those assertions.

I won't lend unproven assertions any credence by repeating them or analyzing them point by point. I do, however, want the public to know this:

The dams on the Upper Missouri – Fort Peck, (Mont.), Garrison Dam (N.D.), Oahe Dam, Big Bend Dam, and Fort Randall Dam (all S.D.) and Gavins Point (S.D./Neb.) -- are fully functional and operating as designed.

The system is protecting the public from unregulated flows. Unregulated flows – which

[Type text]

occur when flood waters flow uncontrolled in a spillway -- would result in significantly more damage. There is no evidence to suggest an emergency situation at any of our dams, and all projects are operating within their design parameters.

Public safety is paramount. As part of this responsibility, we long ago implemented a comprehensive dam safety program at each of our dams. We conduct daily, yearly and periodic (every 5 years) inspections, teaming with state dam safety agencies, Northwestern Division and other agencies to ensure the safety of these structures.

Our extensive instrumentation program allows us to closely monitor areas of interest such as seepage pressure and any minor movement. We've also re-evaluated seismic designs as the state of practice has evolved over recent decades. People need to remember that although our flood control storage is near capacity, dam functionality is not. There is no danger that any of our dams will be overtopped.

It is worth noting that all six dams have experienced similar pool levels several times over their service life. We make it standard operating procedure to increase the level of surveillance as water levels rise so that we can best manage the risks associated with dams of this size and importance. Our elevated surveillance on these dams has not revealed any significant issues or concerns regarding operation at these high pools and or record releases.

In closing, I have full confidence in the operational integrity of our main stem dams. Our dams are inspected and maintained on rigid schedules. Holding back volumes of water is what they were designed to do, and these structures have not only met but surpassed these expectations. We are respectful of these structures and pledge to remain vigilant to continually evaluate the performance and reliability of these projects into the future.

The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Please call us if you have questions – our Joint Information Center number is 402-996-3877. You can also go to our website at <http://www.nwo.usace.army.mil/>

# # #

**NWO**

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 1:24 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

<file:///C:/DOCUME~1/g6pa9krq/LOCALS~1/Temp/msohtmlclip1/01/clip\_image001.jpg>

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

NEWS RELEASE

For Immediate Release: June 11, 2011

Contact: Joint Information Center 402-996-3877

mrjic@usace.army.mil

Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

By Col. Robert J. Ruch

Commander, Omaha District

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is engaged in an epic flood fight. For the last few months, we have focused on managing heavy inflows caused by record snowpack and rainfall in the Upper Missouri River basin. On May 1, the Corps projected summer releases of 57,500 cubic feet per second from Gavins Point Dam and were on schedule to evacuate the runoff from the record snowpack.

Then storms dumped eight inches of rain over Montana and North Dakota and changed the entire scenario. We will be managing these and subsequent inflows for the next several months as record runoff surges through the main stem system.

As Commander of the Omaha District U.S. Army Corps of Engineers, I assure you that we make public safety our number one priority. We are also intensely focused on providing the public with timely, accurate and useable information.

In today's information age, we are confronted with reported assertions that are inaccurate and may induce fear and uncertainty without merit. Such assertions published and circulated in the past few weeks would have the public believe that the main stem dam system on the Upper Missouri could fail.

I disagree with those assertions.

I won't lend unproven assertions any credence by repeating them or analyzing them point by point. I do, however, want the public to know this:

The dams on the Upper Missouri - Fort Peck, (Mont.), Garrison Dam (N.D.), Oahe Dam, Big Bend Dam, and Fort Randall Dam (all S.D.) and Gavins Point (S.D./Neb.) -- are fully functional and operating as designed.

The system is protecting the public from unregulated flows. Unregulated flows - which occur when flood waters flow uncontrolled in a spillway -- would result in significantly more damage. There is no evidence to suggest an emergency situation at any of our dams, and all projects are operating within their design parameters.

Public safety is paramount. As part of this responsibility, we long ago implemented a comprehensive dam safety program at each of our dams. We conduct daily, yearly and periodic (every 5 years) inspections, teaming with state dam safety agencies, Northwestern Division and other agencies to ensure the safety of these structures.

Our extensive instrumentation program allows us to closely monitor areas of interest such as seepage pressure and any minor movement. We've also re-evaluated seismic designs as the state of practice has evolved over recent decades. People need to remember that although our flood control storage is near capacity, dam functionality is not. There is no danger that any of our dams will be overtopped.

It is worth noting that all six dams have experienced similar pool levels several times over their service life. We make it standard operating procedure to increase the level of surveillance as water levels rise so that we can best manage the risks associated with dams of this size and importance. Our elevated surveillance on these dams has not revealed any significant issues or concerns regarding operation at these high pools and or record releases.

In closing, I have full confidence in the operational integrity of our main stem dams. Our dams are inspected and maintained on rigid schedules. Holding back volumes of water is what they were designed to do, and these structures have not only met but surpassed these expectations. We are respectful of these structures and pledge to remain vigilant to continually evaluate the performance and reliability of these projects into the future.

The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Please call us if you have questions - our Joint Information Center number is 402-996-3877. You can also go to our website at <http://www.nwo.usace.army.mil/> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1307243x1267531>>

# # #

# # #

<file:///C:\DOCUME~1\g6pa9krq\LOCALS~1\Temp\mshtmlclip1\01\clip\_image001.jpg>

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NEWS RELEASE

<<http://us.vocuspr.com/Url.aspx?520028x1307244x1786904>>

If you would rather not receive future communications from U.S. Army Corps of Engineers, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317899x3x1875268x24000x6&Email=Jody.S.Farhat%40usace.army.mil>>

U.S. Army Corps of Engineers, 1616 Capitol Ave., Omaha, NE 68102 United States

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:45 AM  
**To:** [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: need some good analogies if possible (UNCLASSIFIED)  
**Attachments:** Conversions for 150,000 cfs.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

I tried to come up with some ways of describing the Gavins Point Dam releases. They were for each of the reservoir, total System, Empire State Building, and Omaha Metro area daily water use.

[REDACTED]

Missouri River Basin Water Management Division Northwestern Division Corps of Engineers

[REDACTED]

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Saturday, June 11, 2011 8:57 AM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02  
**Subject:** FW: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Here are some numbers [REDACTED] played around with for me too.....would like to try & fill something up if possible, not just cover a state. I also liked your ideas about how rapidly we would fill up Gavins with the current inflows.

Anything to try and paint a picture the general public can understand would be very, very helpful!

Thanks!! [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 12:48 PM  
**To:** [REDACTED]  
**Subject:** RE: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE



OK. How about 10.5 MAF is enough water to fill the Memorial (Cornhusker) Stadium about 5000 times. This stadium has a capacity of about 87,000 fans.

Since this the largest vessels (besides reservoirs) that I can think of in the area, I would perhaps use the State of Iowa analogy for the 44.5 MAF.

#### The Math

There is no good volume statistics for Memorial Stadium, but Cowboys Stadium which holds 100,000 fans has a volume of 104,000,000 cubic feet. 1 acre foot = 43560 cubic feet. Therefore Cowboy stadium has a capacity of 2,387 AF or could be filled 4,398 times with 10.5 MAF. Adjusting Memorial Stadium for less capacity than Cowboy Stadium gets me to approximately filling it 5000 times.

#### Others

The following analogy was used by USGS for the 1993 flood "The peak discharge in August 1993 was measured at 485 million gallons per minute or 1,080,000 cubic feet per second—a rate sufficient to fill Busch Stadium about every 65 seconds." This puts Busch Stadium at about 70,200,000 cubic feet of volume. I am estimating the Cornhusker Stadium at 90,500,000 cubic of volume.

Hope this is helpful -

[REDACTED]  
Northwestern Division Economist  
CENWD-PDD  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 09, 2011 9:54 AM  
To: [REDACTED]  
Subject: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
So here's what I'm trying to do if possible -- to provide a visual that most people can understand of the size of a container that would hold 1 million acre feet of water.

The numbers I'm most interested in trying to convey, are 10.5 MAF (the amount of runoff that flowed into the system in the month of May -- the second highest 1 month amount on record)

Also, 44 MAF (the total amount of runoff projected from March through July) -- this is also a record, exceeding the 40 MAF in 1881, which was the baseline amount for which this system was designed.

Thanks!!! [REDACTED]  
[REDACTED]

Attorney/Advisor, U.S. Army Corps of Engineers Office of Counsel, Northwestern Division,  
Portland OR [REDACTED] Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Flow	cfs to AF/day	Days	Acre-feet	"Normal" Top of Pool	30-days @ 150,000	Months to Fill	Days to Fill	Flood Control Storage (AF)	30-days @ 150,000	Months to Fill	Days to Fill
150,000	1.9835	1	297,521	18,463,000	8,925,620	2.07	62.06	3,675,000	8,925,620		
150,000	1.9835	30	8,925,620	23,821,000	8,925,620	2.67	80.07	5,711,000	8,925,620		
				23,137,000	8,925,620	2.59	77.77	4,303,000	8,925,620		
150,000	7.48	1,122,000		1,621,000	8,925,620	0.18	5.45	0	8,925,620		
ft3/sec	gals/ft3	gals/sec		Fort Randall	8,925,620	0.61	18.21	2,294,000	8,925,620		
				Gavins Point*	8,925,620	0.04	1.32	0	8,925,620		
				Total	72,853,000	8.16	245	15,983,000	8,925,620	1.790688	53.72

Typically do not use Flood Control storage

Empire State Building	Ave Area of each floor	Height	cubic Feet	Acre-feet
Floor area	27,143	1000	27,143,049	42,411
2,768,591	102			
Population gal/person				7.015174 number of times it would be filled each day
Omaha Metro	Gallons			
840,000	100	84,000,000	1,122,100	74.859638 Omaha Metro Area's daily water supply needs could be met in just 75 seconds with the Gavins Point release of 150,000 cfs.

365	24	60	31536000 seconds per year
			75 seconds
			420,480 times per year that it would be met
			1,152

**Approximately 100 billion gallons per day**  
 96,949,440,000 84,000,000 1154.16 3.16 Years that one day of water at 150,000 cfs would meet Omaha Metro Area's water supply needs @ 100 gal per capita per day.  
 gallons per day gallons days it was met  
 released from GP Needed

NWO

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:39 AM  
**To:** [REDACTED]; Farhat, Jody S  
[REDACTED]  
**Cc:** [REDACTED]; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]  
[REDACTED]; Kevin W CPT HQ; M [REDACTED]  
Missouri River Basin Water Management Division Situation Report of 6-11-11  
(UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-11-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-11-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows continue to occur into Fort Peck Reservoir from primarily rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/11/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	81.0	58.9	2250	2251.5	0.2
Garrison	125.0	133.5	1854	1853.1	-0.1
Oahe	132.0	150.5	1620	1618.8	-0.1
Big Bend	148.0	147.0	1423	1419.8	0.1
Fort Randall	156.0	136.9	1375	1362.0	0.4
Gavins Point	146.0	143.4	1210	1207.8	0.2

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). Also, less of the exclusive flood control storage is being used at Garrison and Oahe. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. Because the spillway gates are open at Fort Peck and the reservoir is now being surcharged over the top of the exclusive flood control zone, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/11/11)**

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,837	18,463	-374	971	-39
Garrison	23,474	23,821	347	1,489	23
Oahe	22,663	23,137	474	1,102	43
Big Bend	1,607	1,798	191	60	100
Fort Randall	4,150	5,418	1,268	985	100
Gavins Point	388	450	62	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out will be at the currently anticipated maximum releases at all six reservoirs. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/11/11)**

Reservoir	Yesterday	Forecast	7 days out	14 days out	Pre-2011
	kcfs	Today	18 June	25 June	Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	58.9	60.0	60	60	35
Garrison	133.5	135.0	150	150	65
Oahe	150.5	150.0	150	150	59
Big Bend	147.0	150.0	150	150	74
Fort Randall	136.9	137.0	148	148	67
Gavins Point	143.4	145.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/11/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.5	20-21	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.4	35-37	mid-Jun thru July
Decatur, NE	35	37.2	40-42	mid-Jun thru July
Omaha, NE	29	31.3	34-36	mid-Jun thru July
Nebraska City, NE	18	23.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.4	27-32	mid-Jun thru July
Kansas City, MO	32	25.2	30-39	mid-Jun thru July
Waverly, MO	20	24.3	27-31	mid-Jun thru July
Boonville, MO	21	22.5	27-33	mid-Jun thru July
Hermann, MO	21	23.0	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still 3 to 4 feet below the constructed levee crests.

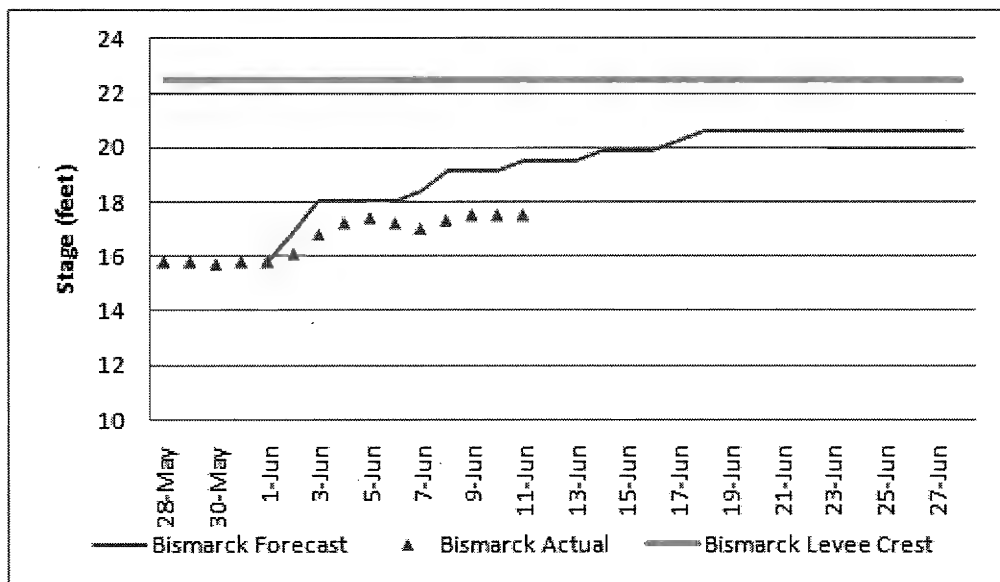


Figure 1. Missouri River stages at Bismarck, North Dakota.

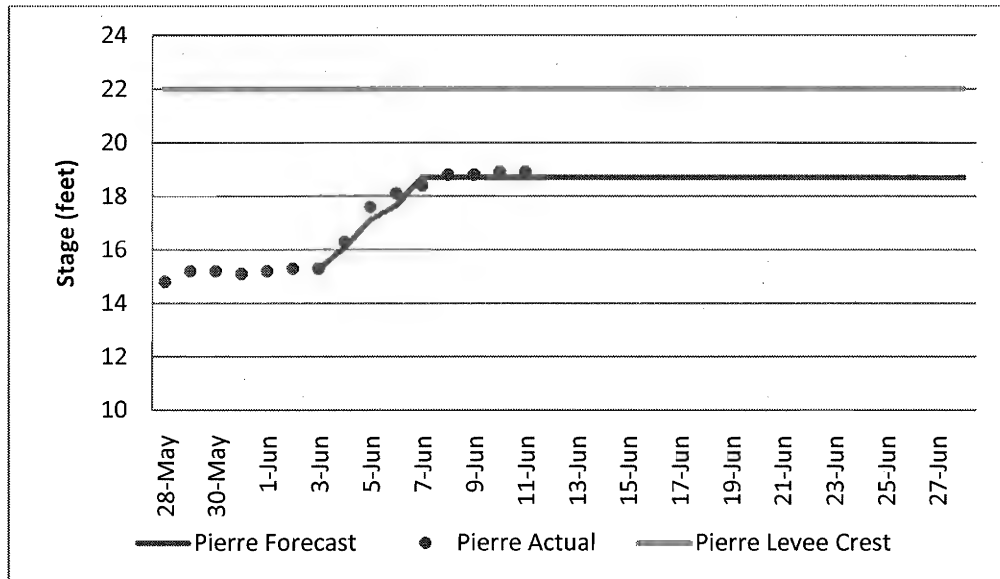


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

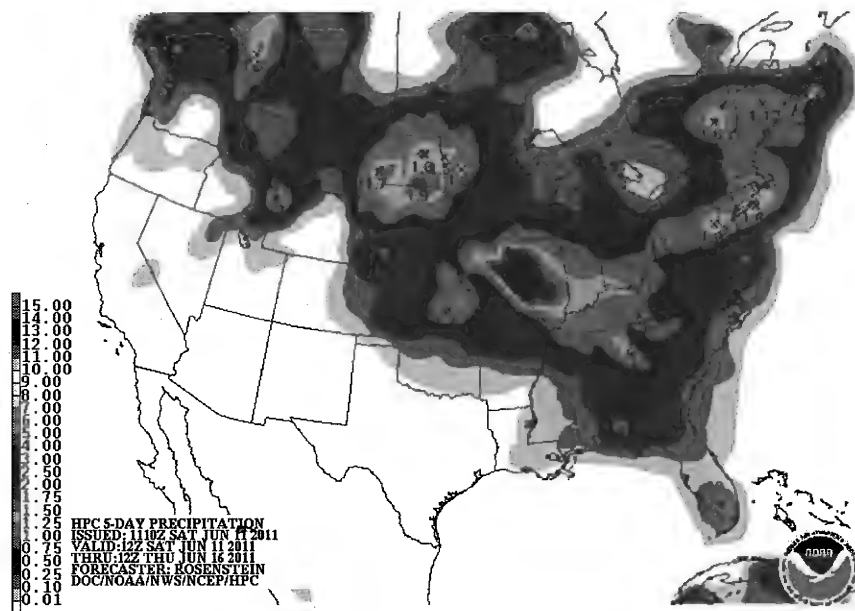


Figure 3. 5-day total QPF ending 0700 Thursday, June 16, 2011.



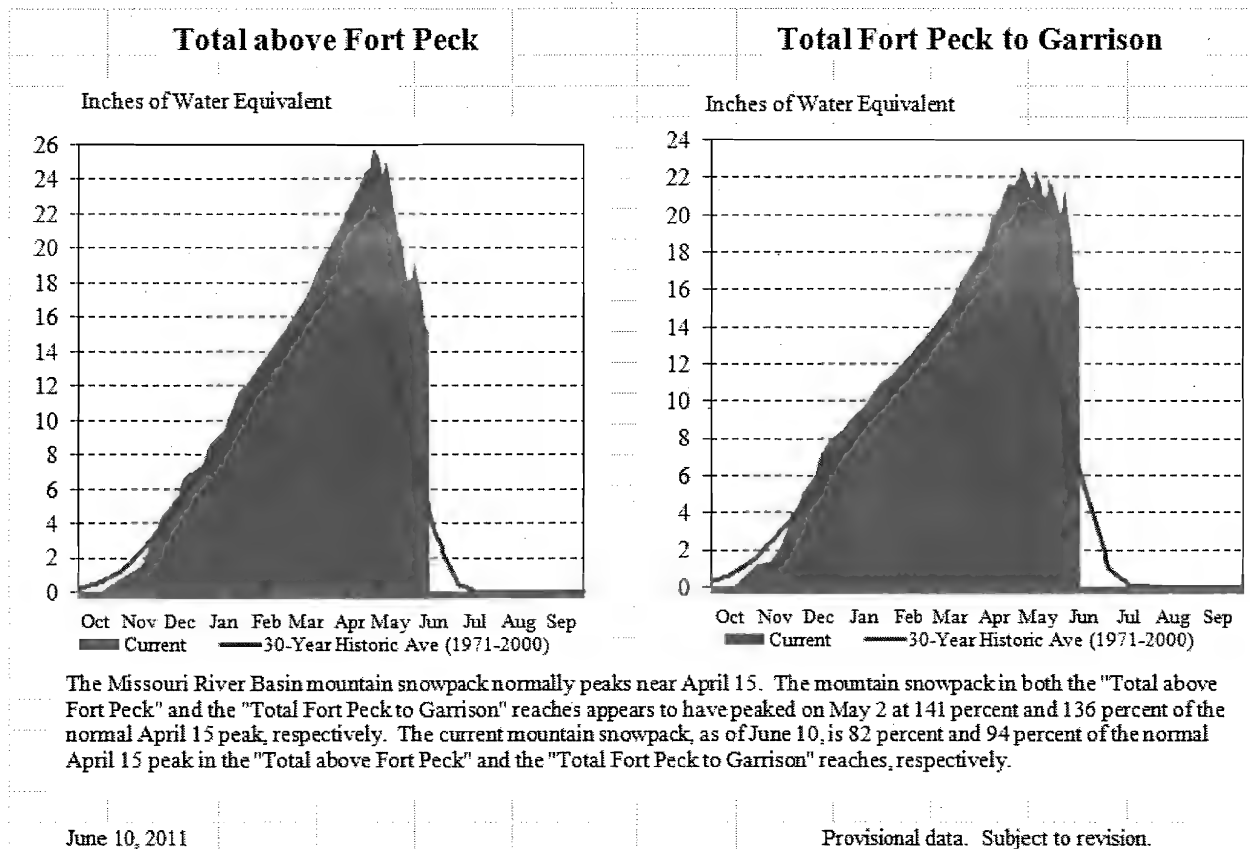


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 10, 2011.

## Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood due to three slump failures in the past week at river stages that have not yet exceeded those experienced in the high flows of 2010.

Figure 5 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 14 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week have been revised down slightly to show a rise to 25.1 feet by next Friday, June 17.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.

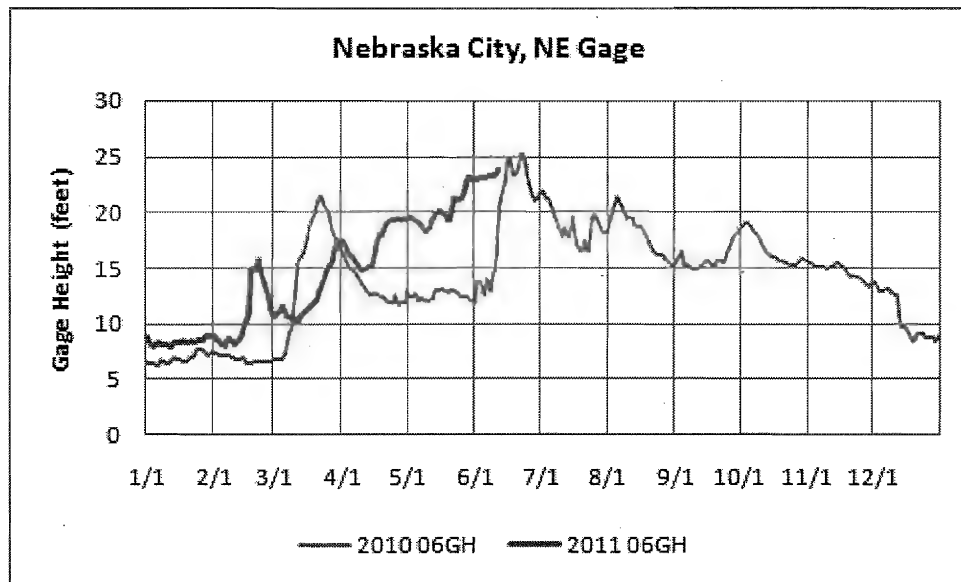


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains did not occur for the first day in a week in the basin. Figure 6 shows the amount of rain that fell yesterday in the basin and surrounding area of the Central Region of the United States.

Missouri Basin RFC Pleasant Hill, MO: Current 1-Day Observed Precipitation  
Valid at 6/11/2011 1200 UTC- Created 6/11/11 15:48 UTC

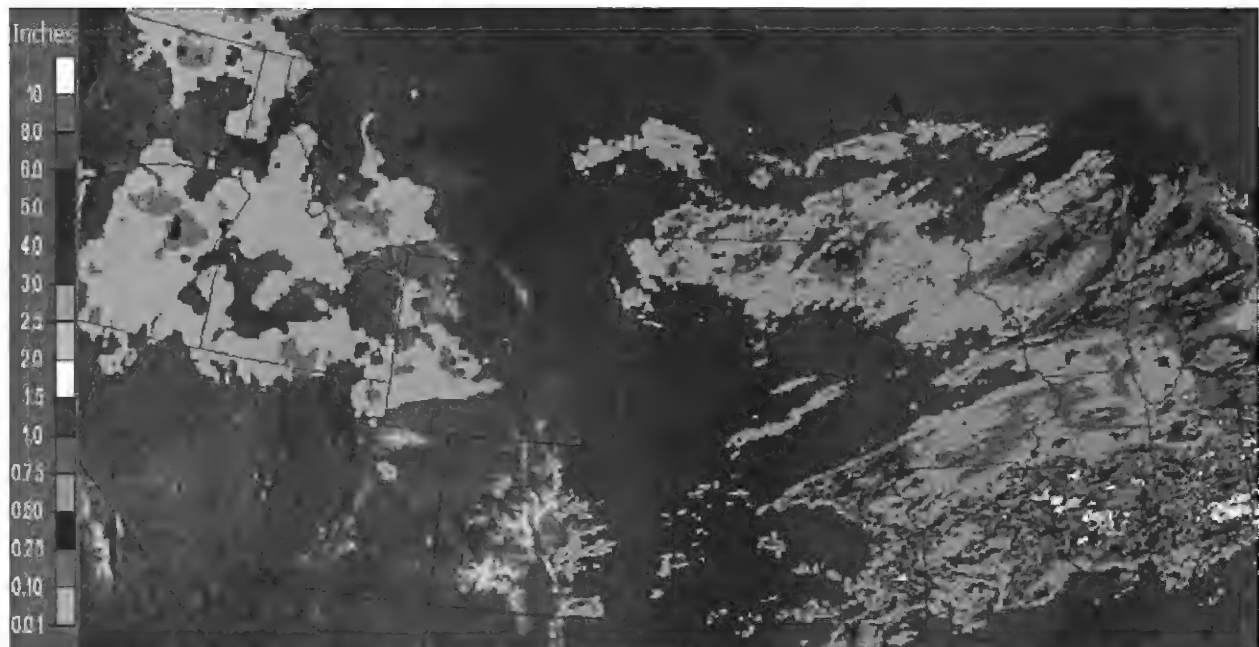


Figure 6. Rainfall on the Central Region of the United States for June 10, 2011.

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:18 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] Michael A NWD02; [REDACTED]  
[REDACTED] NWD02; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: Spillway Gate Elevations (UNCLASSIFIED)  
**Attachments:** 06 11 11.pdf; Spillway Gates 6.11.11.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 8:54 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Spillway Gate Elevations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hello [REDACTED]  
[REDACTED] asked me to forward this on to you.  
If you have any questions, don't hesitate to ask.  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

# Fort Peck Summary

Unit	Status	MW	MVAR	kV	Amps	Disc.
1	Generating	41.9	5.0	14.0	1736	2891
2	Generating	21.8	-0.1	14.1	894	1170
3	Generating	49.4	-1.9	14.3	1995	3363
4	Generating	47.0	-4.8	14.0	1945	3266
5	Generating	46.9	-4.9	14.0	1940	3194

Total 207.0 -7.0 13883

Headwater Elevation 2251.58 Crnt Total Unit Discharge 13883

Tailwater Elevation 2035.30 Crnt Spillway Discharge 46807

Net Head 216.28 Crnt Outlet Tunnel Disc 0

Ambient Temperature 58.2 Crnt Total Plant Disc 60697

Water Temperature 46.7 Crnt Hr Avg Plant Disc 60833

Wind Direction E Daily Avg Plant Disc 60588

Wind Speed 5.8 Current Hr Rain Fall 0.00

Main Menu

08:33AM Jun 11, 2011

# Fort Peck Spillway

Gate	Ft In	CFS Out	CFS In	Ft Out
1	2.8	2875	0	0.0
2	2.8	2875	0	0.0
3	2.8	2875	0	0.0
4	2.8	2875	0	0.0
5	2.9	2976	0	0.0
6	2.9	2976	0	0.0
7	2.9	2976	0	0.0
8	2.9	2976	0	0.0
9	2.9	2976	0	0.0
10	2.9	2976	0	0.0
11	2.9	2976	0	0.0
12	2.9	2976	0	0.0
13	2.8	2875	0	0.0
14	2.8	2875	0	0.0
15	2.8	2875	0	0.0
16	2.8	2875	0	0.0

Current Spillway Discharge 46807

	Spillway	Project
Current HR Avg. Discharge	46820 cfs	60832 cfs
Previous HR Avg. Discharge	46816 cfs	60840 cfs
Running Daily Avg. Discharge	46795 cfs	60588 cfs

Main Menu

## FORT PECK SPILLWAY

<b>DATE</b>	<b>6/11/2011</b>		<b>TIME</b>	<b>0833</b>
<b>GATE</b>				<b>ELEVATION</b>
1				2252.8
2				2252.8
3				2252.8
4				2252.8
5				2252.9
6				2252.9
7				2252.9
8				2252.9
9				2252.9
10				2252.9
11				2252.9
12				2252.9
13				2252.8
14				2252.8
15				2252.8
16				2252.8
<b>LAKE ELEVATION</b>				<b>2251.6</b>

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:07 AM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02  
**Subject:** WM Update - 6-11-11 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 061111.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Today's Update is attached.

[REDACTED]  
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



# Missouri River Basin Stages

11 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
A	Bismarck	16	17.5	150 kcfs 20.6	June 19	
B	Pierre	13	18.9	150 kcfs 18.7	June 7	
C	Yankton	20	24.1	150 kcfs n/a	June 14	
D	Sioux City	30	33.4	170 kcfs 35	June 15	44.28 (1952)
E	Decatur	35	37.2	175 kcfs 40	June 15	43.5 (1943)
F	Blair	26	30.4	175 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	31.3	175 kcfs 34	June 16	40.2 (1952)
H	Nebraska City	18	23.9	200 kcfs 27	June 16	27.19 (1993)
I	Brownville	33	40.0	205 kcfs 43	June 16	44.3 (1993)
J	Rulo	17	23.7	210 kcfs 25.5	June 17	26.63 (2010)
K	St. Joseph	17	22.4	215 kcfs 27	June 17	32.07 (1993)
L	Atchison	22	25.3	215 kcfs 30	June 17	31.63 (1993)
M	Leavenworth	20	21.0	215 kcfs 27	June 17	35.34 (1993)



# Missouri River Basin Stages

11 June 2011



US Army Corps of Engineers  
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
N	Kansas City	32	25.2	220 kcfs 30 350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	24.5	220 kcfs 28 350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	21.4	220 kcfs 25 350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	24.3	230 kcfs 27 370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	22.8	235 kcfs 26 370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	26.3	250 kcfs 32 410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	22.5	260 kcfs 27 420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	22.1	260 kcfs 27 430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	19.0	290 kcfs 24 450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	25.3	300 kcfs 30 470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	23.0	300 kcfs 27 470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19.5	300 kcfs 23 470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.6	300 kcfs 28 470 kcfs 37	June 20	40.04 (1993)



Record Flow (Year)  
\* 35,000 cfs (1975)

Projected Record Flow (Date)  
\* 60,000 cfs (Mid June)

Garrison (In operation since 1955)  
Midnight Elevation  
\* 1853.1 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 125,000 cfs (10 Jun)  
\* 124,000 cfs (9 Jun)

Daily Avg. Release  
\* 133,500 cfs (10 Jun)  
\* 130,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates  
\* 1854 ft msl

River Stage (Bismarck)  
\* 17.51 (0715 CDT 11 Jun)  
\* Flood stage - 16 ft  
\* 17.48 (0615 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)  
\* Releases will be stepped up to 150,000 cfs by mid June.  
\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)  
\* 1854.8 msl (1975)

Record Flow (Year)  
\* 65,000 cfs (1975)

Projected Record Flow (Date)  
\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)  
Midnight Elevation  
\* 1618.8 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 132,000 cfs (10 Jun)  
\* 135,000 cfs (9 Jun)

Daily Avg. Release

- \* 150,500 cfs (10 Jun)
- \* 150,500 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

- \* 1620 ft msl

River Stage (Pierre)

- \* 18.9 (0715 CDT 11 Jun)
- \* Flood stage - 15 ft
- \* 18.88 (0630 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases have been stepped up to 150,000 cfs.
- \* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

- \* 1618.7 msl (1995)

Record Flow (Year)

- \* 59,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

- \* 1419.8 ft msl
- \* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

- \* 148,000 cfs (10 Jun)
- \* 140,000 cfs (9 Jun)

Daily Avg. Release

- \* 147,000 cfs (10 Jun)
- \* 138,700 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

- \* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1362.0 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 156,000 cfs (10 Jun)

\* 148,000 cfs (9 Jun)

Daily Avg. Release

\* 136,900 cfs (10 Jun)

\* 136,300 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.8 ft msl

\* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

\* 146,000 cfs (10 Jun)

\* 146,000 cfs (9 Jun)

Daily Avg. Release

\* 143,400 cfs (10 Jun)

\* 140,100 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

24-hr forecast (Glasgow, MT)

Today: Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.

Tonight: Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.

Sunday: Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.

24-hr forecast (Williston, ND)

Today: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

24-hr forecast (Riverdale, ND)

Today: Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Washburn, ND)

Today: Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.

Tonight: 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.

Tonight: Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.

Sunday: Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.

#### 24-hr forecast (Yankton, SD)

Today: Sunny, with high near 72. North wind 6 to 8 mph becoming east.

Tonight: Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Sioux City, IA)

Today: Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.

Tonight: Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Omaha, NE)

Today: Mostly sunny, with high near 76. North wind around 7 mph becoming east.

Tonight: 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>



Flickr: <http://www.flickr.com/photos/omahausace>

## Missouri River Flooding (Logistics) (Updated 10 Jun; 0800 CDT)

### Personnel Deployed:

9 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
5 (Sioux City, IA)  
4 (Dakota Dunes, SD)  
5 (S. Sioux City, NE)  
4 (Hamburg, IA)  
7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
6 (North Platte, NE)  
1 (Lincoln, NE)

### Equipment Deployed:

HESCO (3' and 4')  
Issued: 48,270 LF  
On Hand: 26,435 LF  
Projected Outstanding Requirements: 39,000 LF

### Sandbags

Issued: 14,031,000  
On Hand: 5,023,500  
Projected Outstanding Requirements: 6.5 M

### Poly Rolls

Issued: 2,456 rolls  
On Hand: 1,644 rolls  
Projected Outstanding Requirements: 1,500 rolls

### Pumps

Issued: 27 pumps  
On Hand: 7  
Projected Outstanding Requirements: 30 pumps

### Additional Supplies due in:

Poly Roll: 525 rolls  
MVK Pumps: 19 pumps  
SWL Pumps: Locating 4-5 pumps

Source of information: CMT Brief (10 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.5 ft msl</li> <li>24-hr Change (+0.2ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>81,000 cfs (10 Jun)</li> <li>83,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>58,900 cfs (10 Jun)</li> <li>53,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 60,000 cfs on 11 June.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>125,000 cfs (10 Jun)</li> <li>124,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>133,500 cfs (10 Jun)</li> <li>130,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.51 (0715 CDT 11 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.48 (0615 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (10 Jun)</li> <li>135,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (10 Jun)</li> <li>150,500 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.9 (0715 CDT 11 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.88 (0630 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (10 Jun)</li> <li>140,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>147,000 cfs (10 Jun)</li> <li>138,700 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1362.0 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>156,000 cfs (10 Jun)</li> <li>148,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,900 cfs (10 Jun)</li> <li>136,300 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.8 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (10 Jun)</li> <li>146,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>143,400 cfs (10 Jun)</li> <li>140,100 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  <b>Today:</b> Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.  <b>Tonight:</b> Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.  <b>Sunday:</b> Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b>  <b>Today:</b> Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>24-hr forecast (Washburn, ND)</b>  <b>Today:</b> Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Pierre, SD)</b>  <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  <b>Today:</b> Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.  <b>Tonight:</b> 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.	<b>24-hr forecast (Chamberlain, SD)</b>  <b>Today:</b> Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.  <b>Tonight:</b> Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.  <b>Sunday:</b> Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b>  <b>Today:</b> Sunny, with high near 72. North wind 6 to 8 mph becoming east.  <b>Tonight:</b> Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Dahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> 20% chance of showers and t-storms after 1pm. Mostly sunny; with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.  <b>Tonight:</b> Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly sunny, with high near 76. North wind around 7 mph becoming east.  <b>Tonight:</b> 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 10 Jun; 0800 CDT)

### Personnel Deployed

9 (Glasgow, MT)	1 (Kansas City, MO)	7 (Missouri River Survey)
4 (Garrison, ND)	5 (Sioux City, IA)	1 (Decatur, NE)
5 (Bismarck, ND)	4 (Dakota Dunes, SD)	1 (Offutt, NE)
1 (Fort Yates, ND)	5 (S. Sioux City, NE)	6 (North Platte, NE)
5 (Williston, ND)	4 (Hamburg, IA)	1 (Lincoln, NE)
5 (Pierre, SD)		

### Equipment Deployed

<b>HESCO (3' and 4')</b> Issued: 48,270 LF On Hand: 26,435 LF Projected Outstanding Requirements: 39,000 LF		
<b>Sandbags</b> Issued: 14,031,000 On Hand: 5,023,500 Projected Outstanding Requirements: 6.5 M		
<b>Poly Rolls</b> Issued: 2,456 rolls On Hand: 1,644 rolls Projected Outstanding Requirements: 1,500 rolls		
<b>Pumps</b> Issued: 27 pumps On Hand: 7 Projected Outstanding Requirements: 30 pumps		

### Additional Supplies due in:

Poly Roll: 525 rolls  
MVK Pumps: 19 pumps  
SWL Pumps: Locating 4-5 pumps

[REDACTED] NWO

From: [REDACTED]  
Sent: Saturday, June 11, 2011 10:05 AM  
To: Wayne Berkas; [REDACTED]  
Cc: [REDACTED], Farhat, Jody S NWD02  
[REDACTED]  
Subject: RE: Wolf Point

Julie Meyer from RFC called and said for now they will assume the spike at the Wolf Point gage is an error. They will revise forecast if necessary if USGS determines the readings are correct.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED]  
[REDACTED]

-----Original Message-----

From: Wayne Berkas [mailto:wrberkas@usgs.gov]  
Sent: Saturday, June 11, 2011 8:55 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: Re: Landusky measurement

The crew is going to Landusky today. They measured Wolf Point yesterday. I'll fix the rating today. I'll look into the sudden change in stage.

Sent from my iPhone

On Jun 11, 2011, at 6:49 AM, [REDACTED] wrote:

> Wayne,  
>  
> Can you get a measurement at Landusky today? I know we talked about  
> one there this weekend, but with the rapid rise overnight today would be great.  
> An email with the flow as soon as you get it would help with the  
> inflow estimates.  
>  
> [REDACTED] will be in the office today for us [REDACTED]. [REDACTED] is the  
> worker for Water Management [REDACTED]  
>  
> By the way, any idea what's going on at Wolf Point??  
>  
> Thanks,  
> [REDACTED]  
> [REDACTED]

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 9:30 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]; Farhat, Jody S NWD02;  
[REDACTED]  
[REDACTED]  
**Subject:** Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-11 Garrison Flood Fight Daily Staff Notes (2).docx; FACT SHEET June 11 2011.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

Attached are the staff notes for Saturday, June 11, 2011. The second attachment is a "Garrison Project Fact Sheet" that was developed based on questions that our Natural Resources personnel hearing while providing visitor assistance. Please continue to provide additional questions that anyone is hearing from the public. This is a great opportunity to educate the public about what we do!

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Saturday, June 11, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.10. Yesterday's elevation: 1853.14
  - Current Tail water Elevation 1683.65. Yesterday's elevation 1683.25
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1688.5
  - Estimated Inflows 133,500 cfs, Releases: 135,000 cfs
  - Release Schedule: Remain at 135,000 cfs Saturday and Sunday. Increase to 140,000 cfs on Monday. Goal remains at 150,000 cfs by June 17th.
  - Spillway gates #'s 1-7 and 21-28 are open one foot. Gate #'s 8-20 are open approximately 2 feet.
  - Current release distribution: Power Plant - 15,000 cfs, Regulating Tunnels - 75,500 cfs, Spillway - 44,500 cfs.
- Fort Peck releases currently 60,000 cfs and scheduled to remain at that level.
- Missouri River Elevations:
  - Bismarck gage: Currently 17.52 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 28.62 feet, forecasted to go to 29.5 feet by Monday. Previous record stage: 28.0 feet.
- Current Snowpack:
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak remains.
  - Garrison - crested at 141% of peak; currently 113% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED])
  - Need to monitor upstream crest road. Cracks in pavement appear to be opening slightly. Monitor area from Station 76 to 91.
  - No major issues reported. Rock repairs to tailrace appear to be holding, we'll continue to monitor both banks.
- Instrumentation (Team Leader [REDACTED])
  - Instrumentation readings going well, no noted issues.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No major issues reported.
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

**Williston Levee:**

- POC's [REDACTED]



- City of Williston is requesting additional Technical Assistance. Requests for additional modeling appear to be a bit extreme based on the current forecast.
- The boils at Williston are still flowing clear water. Some additional small pin boils have been located, but nothing of concern at this time.
- Trying to expedite contracting action to get a contractor in to improve the toe road, so it's available if needed.
- [REDACTED] pursuing installation of oil coolers for the hydraulic fluid on the new pumps.

#### **Natural Resources:**

- POC's [REDACTED]
- Someone has been driving around road closed signs/gates. NR's will be issuing citations for anyone caught doing this.

#### **Outside Maintenance:**

- Built "ball and box" devices to be placed on the west wing wall of the spillway to monitor potential joint movement at three locations. Devices were installed on 6-10.
- Everyone needs to monitor the temporary water line installed across the spillway bridge and down the East side of the dam. Any signs of leakage in this line must be reported immediately. Notify your supervisor, Chuck Phelps, or I. Also notify City of Riverdale, "Clay" at (701) 471-6433 or Charles Sorensen ext. 232, or [REDACTED] There are shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

#### **Power Plant:**

- Currently looking into the feasibility of operating the regulating tunnel gates remotely, from the control room.
- Still having some issues with the camera to monitor the spillway.
- WAPA has requested that we reduce power generation over the weekend. We are currently running two units and making the releases up via the spillway and regulating tunnels.

#### **Weather/Safety:**

Today for Riverdale: Sunshine and a few clouds. High 69F. Winds SSE at 10 to 20 mph. Chance of rain 20%	Tonight for Riverdale: A few showers early with scattered thunderstorms arriving overnight. A few storms may be severe. Low 54F. Winds SE at 10 to 20 mph. Chance of rain 50%.	Tomorrow: Variable clouds with scattered thunderstorms. A few storms may be severe. High around 70F. Winds SE at 10 to 20 mph. Chance of rain 60%.
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- [REDACTED] and [REDACTED] have volunteered to work on evacuation plans. I will coordinate with them as soon as I get a chance.

**Needed Resources:**

- Still working the staffing plan, it is not as easy as I'd hoped due to the constant turnover in support from the District...
- Working to quantify amount of rock needed to replenish emergency stockpiles and to place gravel pads/access roads to the stockpiles.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED]  
[REDACTED]

**OPM Notes:**

- We have a double lock on the East diagonal road so the hatchery folks have access. Someone removed that lock yesterday. This double lock needs to be kept in place!
- Take your time and know where you are driving. Use spotters when needed...
- Flood team meetings every morning at 0700 hours in the Outside Maintenance Building.
- I've attached a "fact sheet" which contains common questions being asked by visitors to the Garrison Project. This sheet contains a lot of good information

# GARRISON PROJECT FACT SHEET

June 11, 2011

Lake Sakakawea Current Elevation: 1853.1 msl

Tailrace: 1683.6 msl

Audubon: 1849.3 msl

## Inflows/Outflows:

Inflows: 133,500 cfs (cubic feet per second)

Combined Outflows: 135,000 cfs

Powerhouse: 16,000 cfs

Regulatory Tunnels: 75,500 cfs

Spillway: 44,500 cfs

## How are the inflows and outflows measured?

1. Inflows: Previous day's inflows are calculated by utilizing the elevation of the reservoir at midnight and comparing it to the previous day's midnight elevation. We then know the change in storage volume based on these two elevations. From that volume, we subtract the outflows to determine the previous day's inflows.
2. Outflows: Flows through the penstocks (power plant generating units) are measured using ultrasonic flow transducers.
3. Outflows: Flows through the regulating tunnels and the Spillway are calculated values derived from discharge rating curves for the type and size of gates at each structure. Based on the height each gate is raised, the rating curve provides the volume of discharge. The discharge rating curves were developed by our Waterways Experimentation Station.

How long does it take the inflows to reach the dam? Approximately two days.

Time for water to reach Bismarck: Normal travel time for the leading edge of the water to reach the Interstate Bridge at Bismarck is approximately 30 hours. However, due to the high releases, the velocities of the river are increasing and travel time can be reduced by as much as 30 percent, which would mean the water could reach the interstate bridge in as little as 20 hours.

## Regulating Tunnels: (3)

cfs capacity for each tunnel? At pool elevation 1853.0 msl: Tunnel 6 – 34,290 cfs; Tunnels 7 & 8 - 28,950 cfs (each)

## Generators: (5)

cfs capacity for each generator? The plant currently has four units in service. At the current conditions (i.e. reservoir elevations), each unit has the capability of releasing approximately 7,800 cfs and generating 100 MW of power.

## Spillway Gates: (28)

Gates are 29 feet high and 40 feet wide.

Maximum combined discharge capacity – 827,000 cfs at elevation 1858.5.

Each gate has a discharge capacity of a little over 1,000 cfs if opened 1 foot.

How high can the gates be opened? Each gate can be opened to 29.5 feet.

How exactly do the gates open? A gate hoist located above each of the gates is used to raise and lower the gates.

What is the long rectangular structure that is below the catwalk and above the spillway gates on the north side and why does the first gate on the west side not have one? The rectangular structures that are located above some of the gates are stop logs that can be stacked on top of each other to form a bulkhead in front of a Spillway gate so the gate can be inspected, serviced, and exercised without releasing water from the lake. There are a total of 18 stop logs at the spillway. One bulkhead to service a gate requires 9 stop logs.

Note: A “bulkhead” is simply another gate composed of metal pieces (the stop logs) stacked on top of each other to block the water.

#### **Spillway:**

Total length – 3200 feet

**What is the depth from the Spillway apron to the stilling basin?** The difference in elevation from the Spillway Apron (1789.55 msl) to the Stilling Basin (1687.9 msl) is approximately 100 feet.

**How exactly does the stilling basin work?** The Stilling Basin is a pool of water with concrete baffles 8’ X 8’ X 10’ that are used to dissipate the energy of the water before passing through the channel to the river. I’ll try and draw a sketch or find a drawing which shows the baffles...

**How deep is the water on the spillway apron when it is released?** The depth of the water on the spillway apron depends on the amount of water being released. Currently the water depth on the apron is approximately 1-2 feet deep.

**What is the depth of water on the north side of the Spillway?** The depth of the water on the north side of the Spillway is approximately 35 -40 feet.

#### **Pilot Channel:**

**How deep is the pilot channel?** Good Question???? I could not find this in the design drawings, but would estimate that it was originally an earthen ditch approximately 10 foot deep. It was designed to guide the initial flow of water from the spillway and allow the flow to cut a new channel. The channel is still eroding and will likely be 15 to 20 feet deep, with deeper holes where softer material was scoured. Ultimately the water flows, their duration and makeup of the soil in the area will determine the final depth of the pilot channel.

#### **Misc Questions:**

**Type of rock that is used for riprap.** Most of the riprap used at the Garrison Project is mined Quartzite

**Depth of Tailrace?** Varies depending on location. At the plant, the depth is approximately 55’.

#### **Garrison Project Facts:**

- Top of Spillway Gates is elevation 1854 msl.
- Top of Dam is elevation 1875 msl.
- Garrison Project Operating Zones/Elevations:
  - Exclusive flood control zone: 1854-1850 1,489,000 acre-feet
  - Annual flood control/multiple purpose zone: 1850-1837.5 4,222,000 acre-feet
  - Carryover/multiple use zone: 1837.5-1775 13,130,000 acre-feet
  - Permanent Pool: 1775-1673 4,980,000 acre-feet
  - Gross Storage: 1854-1673 23,821,000 acre-feet
- Previous Record Releases from the six main stem dams on the Missouri River
  - Fort Peck 35,000 cfs in 1975
  - Garrison 65,000 cfs in 1975
  - Oahe 59,000 cfs in 1997
  - Big Bend 74,000 cfs in 1997
  - Fort Randall 67,000 cfs in 1997
  - Gavin’s Point 70,000 cfs in 1997

[REDACTED] NWO

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From: [REDACTED]  
Sent: Saturday, June 11, 2011 9:20 AM  
To: [REDACTED]  
Subject: FW: Yankton (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

Since Gavin's continues to rise I asked [REDACTED] if the USGS could measure today and verify the 145kcfs since we will be on that flow until Tuesday morning. Ft Randall has been releasing 137kcfs since Tuesday. Local inflows to Gavins should be around 3kcfs.

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 8:24 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Yankton (UNCLASSIFIED)

All,

[REDACTED] has two guys leaving in about 30-45 minutes to head up to Yankton to get the measurement. He thought they would have the reading by about 2pm today. [REDACTED] plans to have them call Tim (I gave [REDACTED]'s office and cell numbers). He also has my cell number in case he cannot get a hold of Tim.

[REDACTED] can be reached at [REDACTED]

Thanks,

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 8:00 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: Fw: Yankton (UNCLASSIFIED)

[REDACTED]  
Could you please call Joe Gorman and see if they can get a measurement asap at Yankton?

His cell number is in water control/data collection/usgs/contacts.

Thanks,  
[REDACTED]

----- Original Message -----

From: [REDACTED]  
To: [REDACTED]  
Sent: Sat Jun 11 05:55:22 2011  
Subject: RE: Yankton (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We went to 145K yesterday. Is it possible they could measure the 145 asap if they haven't already?

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 7:53 AM  
To: [REDACTED]  
Subject: Yankton

I see 138K Thursday at 0900 measured at Yankton on the website. 130 K on the 8th at 1251.

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Wayne Berkas [wrberkas@usgs.gov]  
**Sent:** Saturday, June 11, 2011 8:55 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Farhat, Jody S NWD02  
Re: Landusky measurement

The crew is going to Landusky today. They measured Wolf Point yesterday. I'll fix the rating today. I'll look into the sudden change in stage.

Sent from my iPhone

On Jun 11, 2011, at 6:49 AM, "[REDACTED]"

> Wayne,  
>  
> Can you get a measurement at Landusky today? I know we talked about  
> one there this weekend, but with the rapid rise overnight today would be great.  
> An email with the flow as soon as you get it would help with the  
> inflow estimates.  
>  
> [REDACTED] will be in the office today for us [REDACTED] Joel is the  
> worker for Water Management [REDACTED]  
>  
> By the way, any idea what's going on at Wolf Point??  
>  
> Thanks,  
> [REDACTED]

[REDACTED] NWO

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**From:**

**Sent:**

**To:**

[REDACTED]  
Saturday, June 11, 2011 8:46 AM

Farhat, Jody S NW/D02: S [REDACTED]

**Cc:**

**Subject:**

**Attachments:**

[REDACTED]  
FW: Flow vs Gate Position at various lake elevations (UNCLASSIFIED)

Flow - Gate settings.docx

Classification: UNCLASSIFIED

Caveats: NONE

All:

Attached are potential Fort Peck Spillway flows with corresponding gate openings at different reservoir pools. As you can see, as you can see, we will be discharging more without changing the gate positions. Where the pool is now, we would increase discharges over 15,000 cfs to gain a foot of storage.

[REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE



Assumption: Total Powerhouse Flow @ 200MW is approx. 13500cfs

<u>Total CFS</u>	<u>Spillway CFS</u>	<u>Lake Elevation</u>	<u>Approx. Gate Position</u>
60,000	46,500	2251.5	2.8-2.9
		2252.0	2.8
		2252.5	2.8
		2253.0	2.7-2.8
65,000	51,500	2251.5	3.2
		2252.0	3.2
		2252.5	3.1
		2253.0	3.1
70,000	56,500	2251.5	3.5
		2252.0	3.5
		2252.5	3.4
		2253.0	3.4

Additional Data:

<u>Spillway Discharge CFS</u>	<u>CFS per gate</u>
46,500	2906
51,500	3219
56,500	3531

**NWO**

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 8:45 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Farhat, Jody S  
**Subject:** Mainstem data for NWO sitrep 6/11/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/10 Pool Elev: 2251.5 ft-msl  
24-hr change: 0.2'  
6/10 Ave Inflow: 81,000 cfs  
6/10 Ave Release: 58,900 cfs  
6/11 Scheduled Release: 60,000 cfs

Garrison Dam (ND)

6/10 Pool Elev: 1853.1 ft-msl  
24-hr change: -0.1  
6/10 Ave Inflow: 125,000 cfs  
6/10 Ave Release: 133,500 cfs  
6/11 Scheduled Release: 135,000 cfs

Oahe Dam (SD)

6/10 Pool Elev: 1618.8 ft-msl  
24-hr change: -0.1'  
6/10 Ave Inflow: 132,000 cfs  
6/10 Ave Release: 150,500 cfs  
6/11 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/10 Pool Elev: 1419.8 ft-msl

24-hr change: 0.1'

6/10 Ave Inflow: 148,000 cfs

6/10 Ave Release: 147,000 cfs

6/11 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/10 Pool Elev: 1362.0 ft-msl

24-hr change: 0.4'

6/10 Ave Inflow: 156,000 cfs

6/10 Ave Release: 136,900 cfs

6/11 Scheduled Release: 137,000 cfs

Gavins Point Dam (NE-SD)

6/10 Pool Elev: 1207.8 ft-msl

24-hr change: 0.2'

6/10 Ave Inflow: 146,000 cfs

6/10 Ave Release: 143,400 cfs

6/11 Scheduled Release: 145,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Saturday, June 11, 2011 8:15 AM  
**To:** Anderson, G Witt NWD; McMahon, John R BG NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Witt-  
We'll work it and get the historical info. Will get the right folks (EM, Engineering).  
More to follow.  
Tony

Colonel Tony Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers  
[REDACTED]

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** McMahon, John R BG NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; Hofmann, Anthony J COL NWK; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO; [REDACTED]  
**Sent:** Sat Jun 11 06:03:27 2011  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Tony, could [REDACTED] shop do this? Thanks,

Witt

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** McMahon, John R BG NWD  
**To:** Anderson, G Witt NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; Hofmann, Anthony J COL NWK; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO; [REDACTED]  
**Sent:** Sat Jun 11 05:57:26 2011  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Witt:

Thanks.

One piece I lack familiarity with as mentioned below is, what happened in the MR Basin (and especially in the State of Missouri) in 2009, 2008, and 2007? Was also mentioned in the congressional letter we got last week--past 5 years, Missourians have been hit hard...I know what happened in 2010 and can tell a good story about that one. Please have someone summarize those previous 3 years in a page or 2 for context/perspective in preparation for my visit there later this month. Thanks.

Vr/John McMahon

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** Blechinger, Erik T NWO; McMahon, John R BG NWD

Cc: Tipton, Robert A Col NWD; Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Farhat, Jody S NWD02

Sent: Fri Jun 10 18:49:12 2011

Subject: Fw: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Our visit and tour with Cong Graves and Cong Jenkins for several hours later in the day had quite a different flavor - Graves not so negative; I imagine he was playing to his constituents. Tony did a great job answering several of the questions noted by John from the earlier meeting and Jud answered the tribs inundation issue.

One thing we can bet on is Graves will push for review of MM. I noted in the initial brief to him that the hydrology this year is a new data point which we will be looking at re MM. He locked on to that.

At several site visits including St Joseph, Elwood, Hall's levee, Atchison, the locals were appreciative of NWK work and assistance; water management operation questions were a theme.

The CG's OpEd piece should help if the media pick it up.

Witt

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED]

To: Anderson, G Witt NWD

Sent: Fri Jun 10 16:32:29 2011

Subject: Fw: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED]

To: [REDACTED]; Hofmann, Anthony J COL NWK; [REDACTED]

Sent: Fri Jun 10 14:41:52 2011

Subject: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Congressman Graves held a meeting at Parkville at 2PM, meeting was pretty negative against the Corps. The following were the primary discussion points:

1. Congressman starting out the meeting: There has been flooding in 2007, 2008, 2010, and now and in each case the Corps has "missed their targets every time" and is missing the targets now.
2. Congressman characterized the Corps of Engineers as releasing too much water, not operating properly, and Congressman would ask why we can't lower the releases.

3. Citizens were asking why there can't be a levee at Parkville. Officials portrayed Missouri River Levee at L385 as taking since 1930's to construct. I advised Mayor Richardson (in private) after the meeting that we studied a levee / floodwall at Parkville after 1993 flood, and determined that it had VERY questionable technical feasibility, no economic feasibility, no financial (cost share) feasibility, and that it would devastate the aesthetics of downtown Parkville. City did not pursue a project for that reason. After the meeting in line with the general mood, Mayor took on a slightly questioning or even hostile tone toward me, so I of course departed the area.

4. A citizen claimed that they had the National Guard ready to go out and work on a levee, but the Corps was refusing to allow it. That issue got batted around the meeting quite a bit on how autonomous and hard to work with that the Corps was. Nobody ever said what levee or specified any factual circumstance.

5. Platte County asked for "tributary inundation maps". They told Congressman that Platte County asked the Corps for tributary inundation maps and that the Corps was not providing them. Then, Graves' LD Mr. Matusak called Combs asking for "inundation maps", did not specify "tributary", and then another staffer did same to Amy Blair, this just adding to misinformation. Truth is that we do not have the technical information or capability to provide broadly applied inundation maps on tribs. Dave Combs explained that in a very well worded response email to Mr. Matusak.

6. Never once was mentioned the thousand of sandbags, sandbag machines, Port-a-dam from Rock Island, or the extensive technical support and proactive liaison provided by the Corps to Parkville.

In fairness, several County and City officials, Mayor Richardson, and multiple reporters in the room, all of who know me, nevertheless none of them called out my name or advised that I was there representing the Corps. For that I am eternally grateful to them!

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** Anderson, G Witt NWD  
**Sent:** Saturday, June 11, 2011 7:32 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: FW: Glacier Pictures (UNCLASSIFIED)

Great point!

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Anderson, G Witt NWD  
**Sent:** Fri Jun 10 20:18:56 2011  
**Subject:** Re: FW: Glacier Pictures (UNCLASSIFIED)

But this area is named glacier for a reason. Perhaps we're moving back into the glacier building mode. Or is that just wishful thinking?

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** Farhat, Jody S NWD02  
**Sent:** Fri Jun 10 19:56:05 2011  
**Subject:** Fw: FW: Glacier Pictures (UNCLASSIFIED)

Not to underscore your worries Jody...

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Ruch, Robert J COL NWO  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Hofmann, Anthony J COL NWK  
**Sent:** Fri Jun 10 14:29:21 2011  
**Subject:** FW: FW: Glacier Pictures (UNCLASSIFIED)

Pictures taken 5 June in Montana - think we still have some melt coming?

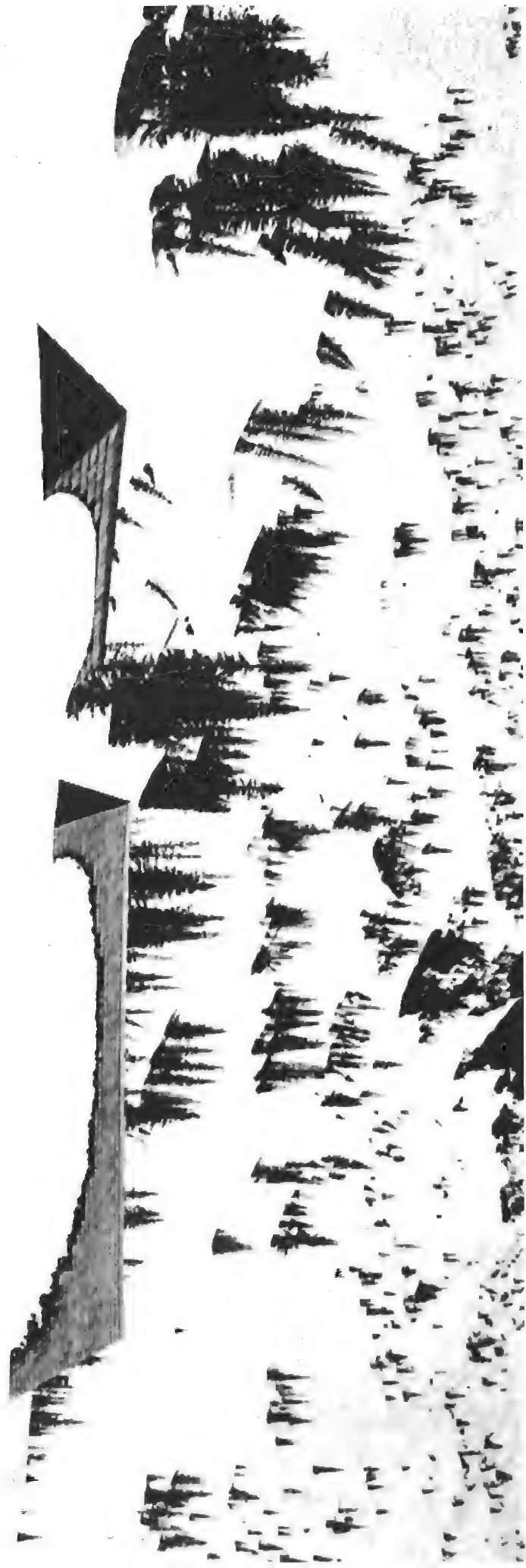
V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE

<https://www.nwo.usace.army.mil/>









Washington, DC 20314

[REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 5:31 PM

To: [REDACTED]  
Subject: FW: No longer accessible Corps web page? (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

FYI

-----Original Message-----

From: Mark Armstrong [mailto:markarmstrong2@me.com]  
Sent: Saturday, June 11, 2011 5:29 PM

To: [REDACTED]  
Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

What we are looking for is the data that shows what the scenarios the Corps will operate under when the flows get higher.

What will be your model for example when these inflows exceed your ability to manage at the present levels.

On Jun 11, 2011, at 5:25 PM, Clayton A SWF wrote:

> Classification: UNCLASSIFIED

> Caveats: NONE

> Mark:

> A better site from our Water Management:

> http://www.nwd-mr.usace.army.mil/rcc/index.html. The first two items  
> on stack of links on the left or on the tool bar will take you the  
> daily bulletin, updated by 1000, and reservoir and river forecasts.  
> In addition, this site has lots of information:

> http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

> Also want you to know that release was made today to KFYR-TV

> concerning these web sites.

> Please give me a return call or email if I can help further.

> Public Affairs Specialist

[REDACTED]

> -----Original Message-----

> From: Mark Armstrong [mailto:markarmstrong2@me.com]

> Sent: Saturday, June 11, 2011 2:39 PM

> To: [REDACTED]

> Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

> Just sent it to you. I was sending the data sites that have the data

> that the corps was pulling from....here is the one that no longer

> updates

> http://www.nwd-mr.usace.army.mil/ncc/reports/showomarep.cgi?0TRIB\_RESE

> RVOIRS

> On Jun 11, 2011, at 2:23 PM, [REDACTED] SWF wrote:

> Mark:

> All web sites you mention here are not Corps of Engineer web sites.

> Is there a Corps site that you can no longer get to that you talked

> about at the 9 a.m. meeting this morning?

> Message sent via my BlackBerry Wireless Device

> From: Mark Armstrong <markarmstrong2@me.com>

> To: [REDACTED]

> Sent: Sat Jun 11 12:04:24 EDT 2011

> Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

> Here is what it is flowing at Noon today at Landusky...

> 06115200

> <http://waterdata.usgs.gov/mt/nwis/uv/?site\_no=06115200&PARAmeter\_cd=00060,00

> 065,00010> Missouri River near Landusky MT 17,800 93,500 32.22

> -- 06/11 12:00

> This is from http://waterdata.usgs.gov/mt/nwis/current?type=flow

> http://waterdata.usgs.gov/mt/nwis/uv/?site\_no=06329500&PARAmeter\_cd=00

> 060,000

> 65,00010

> The formulas as based on the curve line indicators. And these are

> going up, not down.

> Again, what are the snow melt modeling forecasts showing...range is

> the range, mean, mode etc.

> Thanks,

> Mark

> On Jun 11, 2011, at 11:43 AM, Church, Clayton A SWF wrote:

> Classification: UNCLASSIFIED

> Caveats: NONE

> Thanks.

> -Clay

> -----Original Message-----

> From: Mark Armstrong [mailto:markarmstrong2@me.com]  
> Sent: Saturday, June 11, 2011 11:38 AM

> To: [REDACTED]  
> Subject: Re: No longer accessible Corps web page?

> (UNCLASSIFIED)

> I am just finishing attending a funeral I will forward later

> Find me on

> RaisingCatholicKids.com <http://RaisingCatholicKids.com/>

> Facebook.com/markarmstrong2

> and

> Twitter.com/markarmstrong

> On Jun 11, 2011, at 11:07 AM, "Church, Clayton A SWF"  
> <Clayton.A.Church@usace.army.mil> wrote:

> Classification: UNCLASSIFIED

> Caveats: NONE

> Commissioner Armstrong:

> I attended the Mayor's Missouri River Update this morning and

> attempting to find the page that you referenced is no longer

accessible. Do you know the url of the page you are attempting to

find? Here is the forecast page that is still

accessible:

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

Thanks.

Public Affairs Specialist

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

NW/O

From:  
Sent:

To:

Cc:

Subject:  
Attachments:

FW: 6/12/11 Gate Positions (UNCLASSIFIED)  
AR-M355U\_20110612\_064740.pdf; Spillway Gates 6.12.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

From:  
Sent: Sunday, June 12, 2011 6:27 AM

To:

Cc:

Subject: 6/12/11 Gate Positions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Here are the updated gate positions for today. I scanned a printout of the PCS screen. They should not need to be adjusted when they position them at 0800 but if they do I have asked [redacted] to let you know.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



# Fort Peck Spillway

Gate	Ft In	CFS Out	CFS In	Ft Out
1	3.1	3180	0	0.0
2	3.1	3189	0	0.0
3	3.1	3189	0	0.0
4	3.1	3189	0	0.0
5	3.1	3189	0	0.0
6	3.2	3286	0	0.0
7	3.2	3288	0	0.0
8	3.2	3288	0	0.0
9	3.2	3288	0	0.0
10	3.2	3288	0	0.0
11	3.2	3288	0	0.0
12	3.2	3288	0	0.0
13	3.1	3189	0	0.0
14	3.1	3189	0	0.0
15	3.1	3189	0	0.0
16	3.1	3189	0	0.0

Current Spillway Discharge **51712**

	Spillway	Project
Current HR Avg. Discharge	47219 cfs	60890 cfs
Previous HR Avg. Discharge	47009 cfs	60313 cfs
Running Daily Avg. Discharge	47031 cfs	60306 cfs

Min  
Max

05:43AM Jun 12, 2011

New Spillway Settings for 65,000 CFS TOTAL  
 ~ 13,500 CFS Power Plant  
 ~ 51,500 CFS Spillway

FORT PECK SPILLWAY				
DATE	6/12/2011		TIME	800
GATE	Top of Gate Elevation			
1	2253.1			
2	2253.1			
3	2253.1			
4	2253.1			
5	2253.1			
6	2253.2			
7	2253.2			
8	2253.2			
9	2253.2			
10	2253.2			
11	2253.2			
12	2253.2			
13	2253.1			
14	2253.1			
15	2253.1			
16	2253.1			
LAKE ELEVATION		2251.83		

NW0

From:

Sent:

To:

Cc:

Subject:

Attachments:

Emailing: Omaha District-www-ns-home-docs-rcc-reports-db-TRIB\_RESERVOIRS Bulletins-Reports.htm (UNCLASSIFIED)  
Omaha District-www-ns-home-docs-rcc-reports-db-TRIB\_RESERVOIRS Bulletins-Reports.htm

Classification: UNCLASSIFIED

Caveats: NONE

Jody:

The attached/this link [http://www.nwd-mr.usace.army.mil/rcc/reports/showomarep.cgi?0TRIB\\_RESERVOIRS](http://www.nwd-mr.usace.army.mil/rcc/reports/showomarep.cgi?0TRIB_RESERVOIRS) is the page that caused some of

the frustration yesterday from Commissioner Armstrong. I checked the page this morning and it is still accessible but has not been updated since 2 Jun. Do you know if it will be updated in the near future? Paul provided similar pages that I forwarded to the commissioner but still would like an answer if it is scheduled to be updated. Thanks.

[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** David Pope [david.pope@mo-rast.org]  
**Sent:** Saturday, June 11, 2011 10:12 PM  
**To:** McMahon, John R BG NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Farhat, Jody S NWD02; Blechinger, Erik T NWO  
**Cc:** Todd Sando (tsando@nd.gov); Mike Hayden (mikehaydenks@gmail.com); Anderson, G Witt  
**Subject:** FW: USACE News: Fort Peck to increase levels to 65,000 cfs  
**Attachments:** Col. Ruch: Upper Missouri dams safe, functioning, operating as designed; 611NR-RIVERWATCH6-11.pdf

General McMahon, Col. Ruch, Col. Hofmann, Jody, and Erik,

Just want to let you know that I think you and your staff are doing a great job during this flood and appreciate the extensive information you have provided to the public. While I know some people are overloaded with information, I typically forward the USACE News Releases and other information shortly after received to our MORAST Board and State/Tribal distribution list of some 100 people. I usually don't add too many comments, but I added a few of my own comments this evening regarding the dam safety issue, since unwarranted assertions about that issue are especially unfortunate. I suppose it should not be surprising that there will be misinformation and second guessing given the complexity of the issues and stress people are under when their lives are disrupted by flooding.

Hang in there and keep up the good work! The JIC was a good idea. I often call in.

David

-----Original Message-----

From: David Pope  
 Sent: Saturday, June 11, 2011 9:25 PM

Subject: FW: USACE News: Fort Peck to increase levels to 65,000 cfs

I am forwarding the following Corps News Release indicating that they are increasing releases at Fort Peck Reservoir to 65,000 CFS because "Inflows at Fort Peck remain well above previously forecasted levels for the next six to eight days". The reservoir reached a record elevation of 2251.6, which is 1.6 feet into surcharge storage above the top of the exclusive flood pool. The Corps notes that this increase should not affect the planned peak releases from the other five main stem dams.

Also attached is the June 11 Riverwatch and a News Release from the USACE that generally responds to assertions and inaccurate statements that the main stem reservoirs are not safe. Col Ruch describes current operation and condition of the main stem dams and references the Corps dam safety program and further notes:

It is worth noting that all six dams have experienced similar pool levels several times over their service life. We make it standard operating procedure to increase the level of surveillance as water levels rise so that we can best manage the risks associated with dams of this size and importance. Our elevated surveillance on these dams has not revealed any significant issues or concerns regarding operation at these high pools and or record releases.

In closing, I have full confidence in the operational integrity of our main stem dams. Our dams are inspected and maintained on rigid schedules. Holding back volumes of water is what they were designed to do, and these structures have not only met but surpassed

these expectations. We are respectful of these structures and pledge to remain vigilant to continually evaluate the performance and reliability of these projects into the future. The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Thanks. David

David L. Pope, Executive Director  
Missouri River Association of States and Tribes  
825 S. Kansas Avenue, Suite 500  
Topeka, Kansas 66612  
Office: (785) 235-3247, FAX: (785) 233-3104, Mobile: (785) 221-0807 david.pope@mo-rast.org  
www.mo-rast.org

-----Original Message-----  
From: [REDACTED]  
Sent: Saturday, June 11, 2011 6:35 PM  
To: David Pope  
Subject: USACE News: Fort Peck to increase levels to 65,000 cfs

U.S. Army Corps of Engineers  
Omaha District

News Release

Release No: Fort Peck RA-04

FORT PECK TO INCREASE RELEASE LEVELS TO 65,000 CFS

Fort Peck, Mont. - The U.S. Army Corps of Engineers' Fort Peck Dam will increase releases to 65,000 cubic feet per second (cfs) Saturday. The project released 60,000 cfs today and Fort Peck Reservoir reached 2251.6 feet mean sea level today, equaling the previous record set in 1975.

"Inflows at Fort Peck remain well above previously forecasted levels for the next six to eight days," said Jody Farhat, Chief of the Missouri River Water Management office. "As a result, releases at Fort Peck will be increased to better balance the flood storage between Fort Peck and Garrison."

The Fort Peck releases should not affect planned peak releases at the other five Missouri River dams, Farhat said.

"River levels are very high and we encourage residents living downstream to closely monitor the situation and take appropriate action if necessary," said John Daggett, Fort Peck Project Manager.

Heavy rain and melting of historic levels of snowpack over the Northwestern Division area have raised water levels of rivers and reservoirs. Portions of Montana received nearly a year's worth of rain last month, nearly filling the reservoirs.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at MRJIC@usace.army.mil

Please follow us on Facebook ([www.facebook.com/OmahausACE](http://www.facebook.com/OmahausACE)),

([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahausACE](http://www.twitter.com/OmahausACE)), YouTube

([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood

response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at <http://www.nwo.usace.army.mil>. View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at <http://nwd-mr.usace.army.mil/rcc>.

-END-

If you would rather not receive future communications from U.S. Army Corps of Engineers, please go to <http://USACEARMY.pr-optout.com/Output.aspx?520028x24691x317904x3x1875296x2400x6&email=david.pope%40mo-rast.org>. U.S. Army Corps of Engineers, 1616 Capitol Ave Attn: CENWO-PA, Omaha, NE 68102 United States

From:

Sent:

Saturday, June 11, 2011 1:24 PM

david.pope@mo-rast.org

Subject:

Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

<file:///C:/DOCUME~1/g6pa9krq\LOCALS~1\Temp\mshtmlc1p1\01\clip\_image001.jpg>

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

NEWS RELEASE

For Immediate Release: June 11, 2011

Contact: Joint Information Center 402-996-3877

mrjic@usace.army.mil

Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

By Col. Robert J. Ruch

Commander, Omaha District

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is engaged in an epic flood fight. For the last few months, we have focused on managing heavy inflows caused by record snowpack and rainfall in the Upper Missouri River basin. On May 1, the Corps projected summer releases of 57,500 cubic feet per second from Gavins Point Dam and were on schedule to evacuate the runoff from the record snowpack.

Then storms dumped eight inches of rain over Montana and North Dakota and changed the entire scenario. We will be managing these and subsequent inflows for the next several months as record runoff surges through the main stem system.

As Commander of the Omaha District U.S. Army Corps of Engineers, I assure you that we make public safety our number one priority. We are also intensely focused on providing the public with timely, accurate and useable information.

In today's information age, we are confronted with reported assertions that are inaccurate and may induce fear and uncertainty without merit. Such assertions published and circulated in the past few weeks would have the public believe that the main stem dam system on the Upper Missouri could fail.

I disagree with those assertions.

I won't lend unproven assertions any credence by repeating them or analyzing them point by point. I do, however, want the public to know this:

The dams on the Upper Missouri - Fort Peck, (Mont.), Garrison Dam (N.D.), Oahe Dam, Big Bend Dam, and Fort Randall Dam (all S.D.) and Gavins Point (S.D./Neb.) -- are fully functional and operating as designed.

The system is protecting the public from unregulated flows. Unregulated flows - which

occur when flood waters flow uncontrolled in a spillway -- would result in significantly more damage. There is no evidence to suggest an emergency situation at any of our dams, and all projects are operating within their design parameters.

Public safety is paramount. As part of this responsibility, we long ago implemented a comprehensive dam safety program at each of our dams. We conduct daily, yearly and periodic (every 5 years) inspections, teaming with state dam safety agencies, Northwestern Division and other agencies to ensure the safety of these structures.

Our extensive instrumentation program allows us to closely monitor areas of interest such as seepage pressure and any minor movement. We've also re-evaluated seismic designs as the state of practice has evolved over recent decades. People need to remember that although our flood control storage is near capacity, dam functionality is not. There is no danger that any of our dams will be overtopped.

It is worth noting that all six dams have experienced similar pool levels several times over their service life. We make it standard operating procedure to increase the level of surveillance as water levels rise so that we can best manage the risks associated with dams of this size and importance. Our elevated surveillance on these dams has not revealed any significant issues or concerns regarding operation at these high pools and or record releases.

In closing, I have full confidence in the operational integrity of our main stem dams. Our dams are inspected and maintained on rigid schedules. Holding back volumes of water is what they were designed to do, and these structures have not only met but surpassed these expectations. We are respectful of these structures and pledge to remain vigilant to continually evaluate the performance and reliability of these projects into the future.

The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Please call us if you have questions - our Joint Information Center number is 402-996-3877. You can also go to our website at <http://www.nwo.usace.army.mil/> <<http://USACEARMY.prl-out.com/Url.aspx?520028x1307315x288184>>

# # #



# # #

<file:///C:/DOCUMENTS/LOCALS/Temp/msohtml01\clip\_image001.jpg>

U.S. ARMY CORPS OF ENGINEERS

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NEWS RELEASE

<http://portal.mxiologic.com/images/transparent.gif>

If you would rather not receive future communications from U.S. Army Corps of Engineers, let us know by clicking here. <http://USACEARMY.pr-optout.com/optout.aspx?52028x24691x317899x3x1875296x2400x6&Email=david.pope%40mo-rast.org> U.S. Army Corps of Engineers, [REDACTED] Omaha, NE 68102 United States

## Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.5 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1362.0 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.8 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul>
<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>81,000 cfs (10 Jun)</li> <li>83,000 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>125,000 cfs (10 Jun)</li> <li>124,000 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (10 Jun)</li> <li>135,000 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (10 Jun)</li> <li>140,000 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>156,000 cfs (10 Jun)</li> <li>148,000 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (10 Jun)</li> <li>146,000 cfs (9 Jun)</li> </ul>
<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>58,900 cfs (10 Jun)</li> <li>53,600 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>133,500 cfs (10 Jun)</li> <li>130,600 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (10 Jun)</li> <li>150,500 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>147,000 cfs (10 Jun)</li> <li>138,700 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,900 cfs (10 Jun)</li> <li>136,300 cfs (9 Jun)</li> </ul>	<b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>143,400 cfs (10 Jun)</li> <li>140,100 cfs (9 Jun)</li> </ul>
<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul>	<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul>	<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul>	<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul>	<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul>	<b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul>
<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul>	<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul>	<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul>	<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul>	<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul>	<b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul>
<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul>	<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul>	<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul>	<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul>	<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul>	<b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul>
<b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 60,000 cfs on 11 June.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul>	<b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.51 (0715 CDT 11 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.48 (0615 CDT 10 Jun)</li> </ul>	<b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.9 (0715 CDT 11 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.88 (0630 CDT 10 Jun)</li> </ul>	<b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul>	<b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul>	<b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul>
<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul>	<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul>	<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul>	<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul>	<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul>	<b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul>
<b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul>	<b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>150,000 cfs by mid June.</li> </ul>	<b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>150,000 cfs</li> </ul>	<b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul>	<b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul>	<b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul>
<b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul>	<b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul>	<b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  <b>Today:</b> Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.  <b>Tonight:</b> Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.  <b>Sunday:</b> Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b>  <b>Today:</b> Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Pierre, SD)</b>  <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  <b>Today:</b> Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.  <b>Tonight:</b> 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.	<b>24-hr forecast (Chamberlain, SD)</b>  <b>Today:</b> Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.  <b>Tonight:</b> Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.  <b>Sunday:</b> Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b>  <b>Today:</b> Sunny, with high near 72. North wind 6 to 8 mph becoming east.  <b>Tonight:</b> Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Caine	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.  <b>Tonight:</b> Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly sunny, with high near 76. North wind around 7 mph becoming east.  <b>Tonight:</b> 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>  
Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

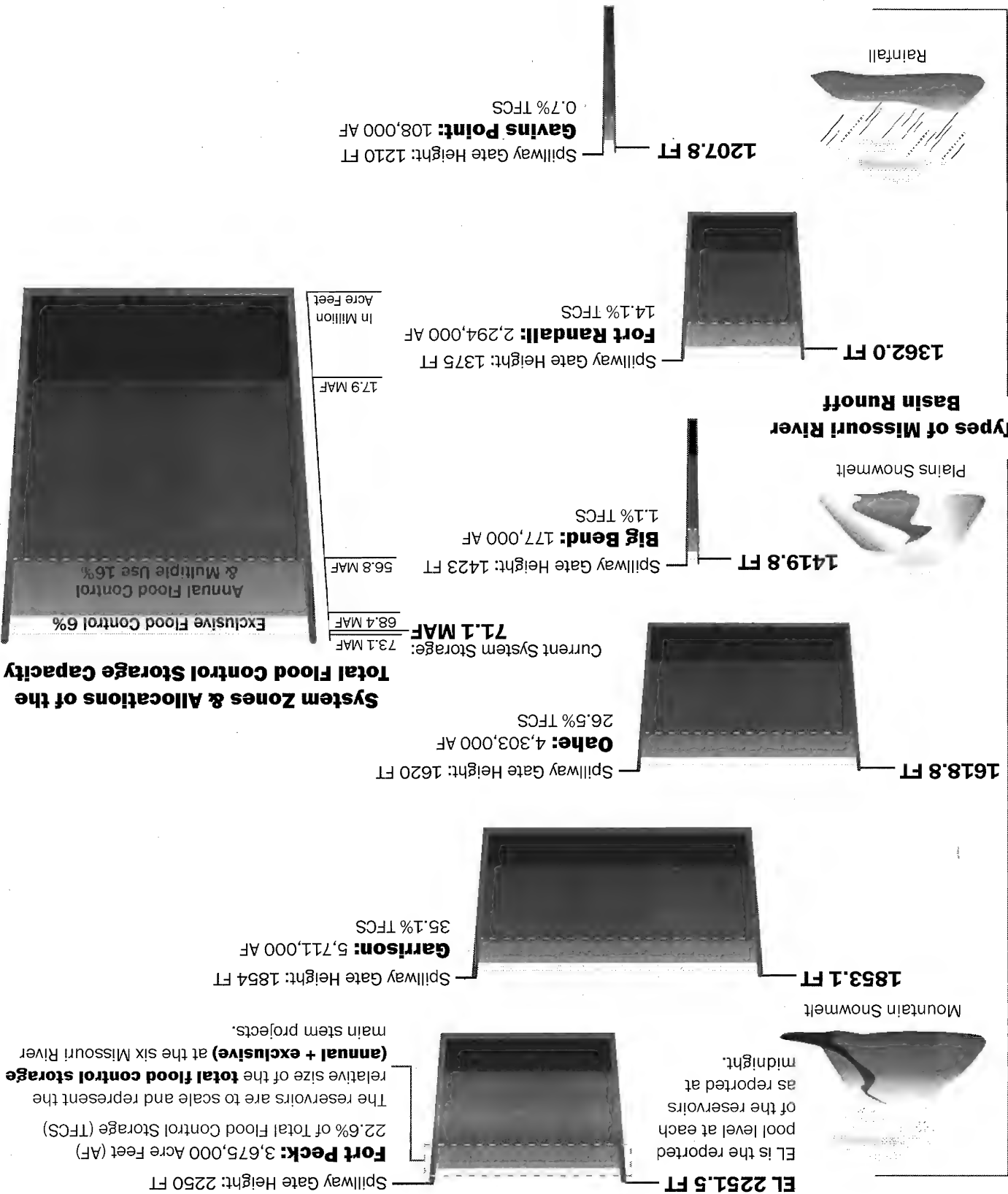
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Flickr: <http://www.flickr.com/photos/omahausace>

# Missouri River Main Stem Reservoir System

Midnight Elevation (EL) Forecast: June 11, 2011 (feet above mean sea level)



U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: (406) 526-3111

today, Fort Peck's spillway is releasing approximately 46,700 cfs with eight gates open 2.8 ft and eight gates open 2.9 ft. Pool elevation this morning was 22251.4 ft leaving 1.4 ft and 1.5 ft of freeboard on the gates. [REDACTED] worked up a spreadsheet of gate openings for 65,000 cfs and 70,000 cfs with different pools. I had a question on one of his pool elevations. I will talk to him tonight to clarify and send it on. His numbers are showing that we have to raise the gates about 0.3 ft for each 5,000 cfs increase at these pool elevations. My concern is that at 0.2 ft per day rise in pool, it doesn't take to many days until we are out of pool. Once the pool reaches the top of the gates, we will need to keep raising the gates to stay ahead of the pool. I do not think it would be wise to overtop the gates while they are up. I realize we have an unofficial extra approx. 0.5 ft on the top of the gates but using that would be cutting it pretty close.

: λρος

Classification: UNCLASSIFIED  
Caveats: NONE

[illegible]

Λρος

- We share your concern and we're watching it closely. We're still mulling over increasing your releases to 65 kcfs at least for a short time. We'll know more this afternoon when we get the measurement at Landusky and the updated inflow forecast.

Classification: UNCLASSIFIED  
Caveats: NONE

[illegible]

From: Farhat, Jody S NWD02  
Sent: Saturday, June 11, 2011 12:19 PM  
To: Gross, Sarah LRC  
Subject: RE: 'normal' dam release questions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Page 46 of our annual operating plan has a table that shows release to meet full and minimum navigation targets under two runoff scenarios. Releases in that range are what we would consider to be "normal" summer releases from Gavins Point dam. The link to the AOP is <http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/finalAOP2010-2011.pdf>

We also have statistics on historic releases. They are found at the following link: <http://www.nwd-mr.usace.army.mil/rcc/projecta/projecta.html> There are 4 pages of outflow statistics for each dam: minimum daily, maximum daily, average daily in kcfs and average daily in kaf. The average daily in kcfs would be the best number for use in answering questions about "normal" releases.

Jody

-----Original Message-----

From: Gross, Sarah LRC  
Sent: Friday, June 10, 2011 10:26 AM  
To: Farhat, Jody S NWD02  
Subject: 'normal' dam release questions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, are our dams constantly releasing water during seasons of normal precipitation? Do you have the numbers for normal releases at each of the dams?

Sarah D. Gross  
Public Affairs Specialist  
U.S. Army Corps of Engineers, Chicago District  
111 N. Canal St., Chicago IL, 60606

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<http://www.flickr.com/photos/usacehicago>  
Great Lakes and Mississippi River Interbasin Study (GLMIS):  
<http://glmis.anl.gov>  
<http://facebook.com/glmis>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



OMN [REDACTED]

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 11, 2011 12:43 PM  
**To:** [REDACTED] SAW  
**Subject:** 3 week forecast (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
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Cell: 402-350-1417  
Home: 402-551-6013

Classification: UNCLASSIFIED  
Caveats: NONE

OMN

From:  
Sent:  
To:  
Cc:  
Subject:

Farhat, Jody S NWD02  
Saturday, June 11, 2011 4:10 PM  
Church, Clayton A SWF; Johnston, Paul T HQ@ NWO  
NWO; [REDACTED] HQ02@NWO  
RE: Questions from 11 Jun Bismarck Mayor's Missouri River Update (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We haven't changed what we're posting with regard to reservoir forecasts. Could be a problem on his end.

And those are our "currently anticipated" peak releases. We don't expect them to change, but they could if mother nature sends more heavy rain our way.

Jody

-----Original Message-----

From: Church, Clayton A SWF  
Sent: Saturday, June 11, 2011 3:56 PM  
To: Johnston, Paul T HQ@ NWO; Farhat, Jody S NWD02  
Cc: [REDACTED] HQ02; [REDACTED] NWO; HQ02@NWO  
Subject: FW: Questions from 11 Jun Bismarck Mayor's Missouri River Update (UNCLASSIFIED)  
Classification: UNCLASSIFIED  
Caveats: NONE

Paul and Jody:

I believe we have answers for both of the Commissioner Armstrong's questions but wanted you to know why we have called and emailed.

Burleigh County Commissioner Mark Armstrong made a presentation this morning at the Bismarck Mayor's Missouri River Update and asked a couple of questions. Here is a link to the 11 Jun update (Commissioner Armstrong's presentation toward the end):  
<http://www.dakotamediaaccess.org/channel2/program-information/other-programs/special-meetings/>

1. There was a post last night on Facebook around 2200 that had Jody's quote about releases and schedule. Here is that post: (approx. 2200 on 10 Jun 11)

US Army Corps of Engineers, Omaha District "I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August." Jody Farhat, Chief Mo. River Basin Water Mgt

<http://www.facebook.com/pages/Fort-Worth-District-US-Army-Corps-of-Engineers/188083711219308#i/OmahausACE>

Major concern was on the wording "currently anticipated".

2. Why was the page that used to show future releases removed? Not sure which page he is referring and have emails and phone messages asking for clarification. This page is still

accessible <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Are you aware if any pages that the Corps has recently taken down or changed concerning river forecasts?

-Clay Church  
Public Affairs Specialist  
Cell 682-429-7662  
State EOC 701-328-8206

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



## **2011 Missouri River Flood Talking Points Missouri River Water Management 11 June 2011**

We posted the updated reservoir forecast to the web this afternoon. There one adjustment to planned releases.

Inflows into Fort Peck have remained very high due to the rain earlier this week and the reservoir level continues to climb. Today the pool tied the previous record when it reached 2251.6 feet. As a result, releases from Fort Peck will be increased tomorrow to 65,000 cfs, 5,000 cfs above the current release rate. This will allow us to better balance the remaining flood storage in Fort Peck and Garrison. This change will not impact the planned peak releases from the remaining 5 dams. Peak releases at Garrison, Oahe, Big Bend, Fort Randall and Gavins Point remain at 150,000 cfs.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases 60,000 cfs today and will be increased to 65,000 cfs tomorrow.
- Garrison –135,000 cfs today, holding that release on Sun, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, and gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 145,000 cfs today, holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change

NWO

From: Farhat, Jody S NWD02  
Sent: Saturday, June 11, 2011 6:10 PM  
To: [REDACTED] HQ02; [REDACTED] NWO  
Cc: Church, Clayton A SWF  
Subject: RE: No longer accessible Corps web page? (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The only answer we have is that we continue to look at the inflow forecasts, snowpack and weather information every day and to date we have seen nothing that suggests that we will need additional releases from Garrison dam. If anything changes, we will let them know immediately. We are committed to an open and transparent decision making process.

Jody

-----Original Message-----  
From: [REDACTED] HQ02  
Sent: Saturday, June 11, 2011 5:48 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Cc: Church, Clayton A SWF  
Subject: FW: No longer accessible Corps web page? (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody and [REDACTED]

The following email is in response to the information passed on to Commissioner Mark Armstrong after our conversation with Jody this afternoon. I do not believe anything we provide to him will pacify him. In your opinion what do you suggest in reference to his carry-on concerns. (Send him the link to the Master Manual?)

Thanks

[REDACTED]  
[REDACTED]  
[REDACTED] cell  
[REDACTED] Blackberry  
Washington, DC 20314  
441 G Street NW  
HQ-USACE Contingency Operations Directorate

[REDACTED] sace.army.mil

-----Original Message-----  
From: Church, Clayton A SWF  
Sent: Saturday, June 11, 2011 5:31 PM  
To: [REDACTED] HQ02  
Subject: FW: No longer accessible Corps web page? (UNCLASSIFIED)  
Classification: UNCLASSIFIED

Caveats: NONE

FYI

-----Original Message-----  
From: Mark Armstrong [mailto:markarmstrong2@me.com]  
Sent: Saturday, June 11, 2011 5:29 PM  
To: Church, Clayton A SWF  
Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

What we are looking for is the data that shows what the scenarios the Corps will operate under when the flows get higher.

What will be your model for example when these inflows exceed your ability to manage at the present levels.

On Jun 11, 2011, at 5:25 PM, Church, Clayton A SWF wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Mark:

> A better site from our Water Management:  
> http://www.nwd-mr.usace.army.mil/rcc/index.html. The first two items  
> on stack of links on the left or on the tool bar will take you the  
> daily bulletin, updated by 1000, and reservoir and river forecasts.  
> In addition, this site has lots of information:  
> http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

> Also want you to know that release was made today to KFYR-TV  
> concerning these web sites.

> Please give me a return call or email if I can help further.

> -Clay Church  
> Public Affairs Specialist  
> State EOC 328-8206

> -----Original Message-----

> From: Mark Armstrong [mailto:markarmstrong2@me.com]  
> Sent: Saturday, June 11, 2011 2:39 PM

> To: Church, Clayton A SWF  
> Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

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> RVOIRS

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Mark:  
All web sites you mention here are not Corps of Engineer web sites.  
> Is there a Corps site that you can no longer get to that you talked  
> about at the 9 a.m. meeting this morning?

-Clay  
-----  
Message sent via my BlackBerry Wireless Device

From: Mark Armstrong <markarmstrong2@me.com>  
> To: Church, Clayton A SWF  
> Sent: Sat Jun 11 12:04:24 2011  
> Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

> Here is what it is flowing at Noon today at Landusky...

> 06115200  
> <http://waterdata.usgs.gov/mt/nwis/uv/?site\_no=06115200&PARAMETER\_cd=00660,00  
> 065,00010> Missouri River near Landusky MT 17,800 93,500 32.22  
> -- 06/11 12:00

> This is from http://waterdata.usgs.gov/mt/nwis/current?type=flow

> http://waterdata.usgs.gov/mt/nwis/uv/?site\_no=06329500&PARAMETER\_cd=00  
> 060,000  
> 65,00010

> The formulas as based on the curve line indicators. And these are  
> going up, not down.

> Again, what are the snow melt modeling forecasts showing...range is  
> the range, mean, mode etc.

> Thanks,

> Mark

> On Jun 11, 2011, at 11:43 AM, Church, Clayton A SWF wrote:

> Classification: UNCLASSIFIED  
> Caveats: NONE

> Thanks.



-Clay

-----Original Message-----

From: Mark Armstrong [mailto:markarmstrong2@me.com]  
Sent: Saturday, June 11, 2011 11:38 AM

To: Church, Clayton A SWF

Subject: Re: No longer accessible Corps web page?

(UNCLASSIFIED)

I am just finishing attending a funeral I will forward later

Find me on

RaisingCatholicKids.com <http://RaisingCatholicKids.com/>  
Facebook.com/markarmstrong2

and

Twitter.com/markarmstrong

On Jun 11, 2011, at 11:07 AM, "Church, Clayton A SWF"  
<Clayton.A.Church@usace.army.mil> wrote:

Classification: UNCLASSIFIED

Caveats: NONE

Commissioner Armstrong:

I attended the Mayor's Missouri River Update this morning and

attempting to find the page that you referenced is no longer

accessible. Do you know the url of the page you are attempting to

find? Here is the forecast page that is still

accessible:

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

Thanks.

-Clay Church

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]

NWO

From: Farhat, Jody S NWD02  
Sent: Saturday, June 11, 2011 6:31 PM  
To: Ruch, Robert J COL NWO; Anderson, G Witt NWD  
Subject: Daily system storage changes since 1 May (UNCLASSIFIED)  
Attachments: 20110611182309507\_0001.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

Daily system storage changes as requested.

Jody

Classification: UNCLASSIFIED  
Caveats: NONE

SYS

24SG

24SC

DAY 2011 MAY

1 65487.

2 65473.

3 65463.

4 65502.

5 65535.

6 65589.

7 65611.

8 65599.

9 65607.

10 65749.

11 65845.

12 65982.

13 66104.

14 66187.

15 66214.

16 66257.

17 66294.

18 66356.

19 66415.

20 66544.

21 66810.

22 67139.

23 67471.

24 67774.

25 68144.

26 68542.

27 68975.

28 69354.

29 69706.

30 70090.

31 70379.

JUN

1 70634.

2 70810.

3 70907.

4 70924.

5 70952.

6 70946.

7 71018.

8 71043.

9 71089.

10 71119.

11

OMW

From: Farhat, Jody S NWD02  
Sent: Sunday, June 12, 2011 8:32 AM  
To: [REDACTED] OMW  
Subject: Re: No longer accessible Corps web page? (UNCLASSIFIED)

No. He's having problem getting to the 3 week forecast for some reason. It's posted and everyone else is able to get it.

Jody

----- Original Message -----  
From: [REDACTED] OMW  
To: Farhat, Jody S NWD02  
Sent: Sun Jun 12 06:29:35 2011  
Subject: RE: No longer accessible Corps web page? (UNCLASSIFIED)  
Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Does this have anything to do with what you and I and Kevin talked about on Friday? I can find a web page that is inaccessible.

----- Original Message -----  
From: Farhat, Jody S NWD02  
Sent: Saturday, June 11, 2011 6:10 PM  
To: [REDACTED] HQ02; [REDACTED] OMW  
Cc: Church, Clayton A SWF  
Subject: RE: No longer accessible Corps web page? (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The only answer we have is that we continue to look at the inflow forecasts, snowpack and weather information every day and to date we have seen nothing that suggests that we will need additional releases from Garrison dam. If anything changes, we will let them know immediately. We are committed to an open and transparent decision making process.

Jody

----- Original Message -----  
From: [REDACTED] HQ02  
Sent: Saturday, June 11, 2011 5:48 PM  
To: Farhat, Jody S NWD02; [REDACTED] OMW  
Cc: Church, Clayton A SWF  
Subject: FW: No longer accessible Corps web page? (UNCLASSIFIED)  
Classification: UNCLASSIFIED  
Caveats: NONE

Jody and [REDACTED]

The following email is in response to the information passed on to Commissioner Mark Armstrong after our conversation with Jody this afternoon. I do not believe anything we provide to him will pacify him. In your opinion what do you suggest in reference to his carry-on concerns. (Send him the link to the Master Manual?)

Thanks

HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
Blackberry  
Cell  
[REDACTED]@usace.army.mil

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From: Church, Clayton A SWF  
Sent: Saturday, June 11, 2011 5:31 PM  
To: Clark, Mark D HQ02  
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> 065,00010> Missouri River near Landusky MT 17,800 93,500 32.22  
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Public Affairs Specialist

State EOC 328-8206

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

From: Farhat, Jody S NWD02  
Sent: Sunday, June 12, 2011 11:27 AM  
To: [REDACTED] NWD  
Subject: RE: ISC COP Meeting (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I guess you can just tell them that this is a historic event on the Missouri River. This will be the highest runoff year on record, and the March - July runoff volume is expected to be at least 10% higher than the reservoir design flood.

Jody

-----Original Message-----  
From: [REDACTED] NWD  
Sent: Sunday, June 12, 2011 9:59 AM  
To: Farhat, Jody S NWD02  
Subject: FW: ISC COP Meeting

Jody, anything you want me to say or show on your situation?

From: Webb, Jerry W HQ02  
To: [REDACTED] NWD; [REDACTED] SMD; [REDACTED] NWD; [REDACTED] NAN02;  
[REDACTED] ERDC-EL-MS; [REDACTED] HEC; [REDACTED] SAD; [REDACTED] NWD02;  
[REDACTED] HQ02; [REDACTED] ERDC-EL-MS; [REDACTED] W HQ02; [REDACTED] NAD;  
[REDACTED] @ POD; [REDACTED] LRDR; [REDACTED] ERDC-CRREL-NH; [REDACTED] E  
MVD; [REDACTED] HQ02; [REDACTED] SPD; [REDACTED] HQ02  
Sent: Sun Jun 12 06:36:45 2011  
Subject: ISC COP Meeting

Our COP meeting will start at 2:00pm Monday. Early in the meeting there is a place for each division to make a few comments and/or highlight lessons learned from the recent floods. We need to keep this brief but I wanted each of you to have the opportunity. Please let me know if you will be attending and want to take a few minutes? If you have slides we can load them onsite or send them to me and I will go ahead and put them in the presentation.

[REDACTED]  
Principal Hydrologic & Hydraulic Engineer Hydrology, Hydraulics & Coastal Community of  
Practice leader  
441 G. Street NW (CECM-CE)  
Washington, DC 20314-1000  
Email: [REDACTED]@usace.army.mil  
Office: [REDACTED]  
Cell: [REDACTED]  
Fax: [REDACTED]

Tonight: Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.

Saturday: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Breezy, with a southeast wind 6 to 9 mph increasing to 17 to 20 mph. Winds could gust as high as 25 mph.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms. Cloudy, with a high near 63. Northeast wind 3 to 7 mph.

Tonight: Mostly cloudy, with a low around 46. North wind 6 to 9 mph becoming east southeast.

Saturday: 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 73. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms. Cloudy, with a high near 64. North northeast wind 3 to 7 mph.

Tonight: Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.

Saturday: 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 74. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: 20% chance of showers and t-storms. Mostly cloudy, with a high near 64. North northwest wind 3 to 8 mph.

Tonight: Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.

Saturday: Mostly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with a high near 66. North northwest wind 5 to 8 mph. Chance of precipitation is 30%.

Tonight: Mostly cloudy, with a low around 47. East northeast wind 5 to 7 mph.

Saturday: Mostly sunny, with a high near 75. East southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 28 mph.

#### 24-hr forecast (Yankton, SD)

Today: Chance of showers and t-storms, mainly before 1pm. Partly sunny, with a high near 68. North northwest wind 7 to 11 mph. Chance of precipitation is 30%.

Tonight: Partly cloudy, with a low around 50. North wind at 8 mph becoming east southeast.

Saturday: Mostly sunny, with a high near 73. East southeast wind 3 to 10 mph.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Showers likely, mainly before 1pm. Cloudy, with a high near 58. North wind 6 to 9 mph becoming east. Chance of precipitation is 70%.

Tonight: Cloudy, then gradually becoming partly cloudy, with a low around 44. East wind 6 to 9 mph becoming calm.

Saturday: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 71. Breezy, with a southeast wind 6 to 9 mph increasing to 18 to 21 mph. Winds could gust as high as 26 mph.

#### 24-hr forecast (Sioux City, IA)

Today: Slight chance of showers and t-storms before 1pm. Partly sunny, with a high near 70. North wind 8 to 14 mph. Chance of precipitation is 20%.

Tonight: Partly cloudy, with a low around 51. North wind at 9 mph becoming east southeast.

Saturday: Mostly sunny, with a high near 74. Calm wind becoming east northeast around 6 mph.

#### 24-hr forecast (Omaha, NE)

Today: Mostly cloudy, with a high near 72. North wind around 14 mph.

Tonight: Partly cloudy, with a low around 54. North wind at 11 mph becoming east.

Saturday: Mostly sunny, with a high near 77. East northeast wind 5 to 8 mph

Source of information:

<http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>

#### Missouri River Flooding (Logistics) (Updated 9 Jun; 0800 CDT)

##### Personnel Deployed

6 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Box Elder, MT)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
6 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
4 (Hamburg, IA)  
7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
8 (North Platte, NE)

1 (Lincoln, NE)

Equipment Deployed

HESCO (3' and 4')

Issued: 48,270 LF

On Hand: 26,435 LF

Projected Outstanding Requirements: 39,000 LF

Sandbags

Issued: 13.8 M

On Hand: 4,780,500

Projected Outstanding Requirements: 6.5 M

Poly Rolls

Issued: 2,401 rolls

On Hand: 1,691 rolls

Projected Outstanding Requirements: 1,500 rolls

Pumps

Issued: 26 pumps

On Hand: 7

Projected Outstanding Requirements: 30 pumps

Additional Supplies due in:

Sandbags: 495,000

Poly Roll: 525 rolls

Source of information: CMT Brief (9 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 10 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.4 ft msl</li> <li>24-hr Change (+0.2ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>83,000 cfs (9 Jun)</li> <li>79,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>53,600 cfs (9 Jun)</li> <li>50,700 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Peak release will be 55,000 cfs by Friday.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.2 ft msl</li> <li>24-hr Change (0.0 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>124,000 cfs (9 Jun)</li> <li>115,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>130,600 cfs (9 Jun)</li> <li>130,800 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.48 (0615 CDT 10 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.46 (0815 CDT 9 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>135,000 cfs (9 Jun)</li> <li>132,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (9 Jun)</li> <li>150,700 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.88 (0630 CDT 10 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.84 (0731 CDT 9 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.7 ft msl</li> <li>24-hr Change (+0.3 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>140,000 cfs (9 Jun)</li> <li>148,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>138,700 cfs (9 Jun)</li> <li>148,400 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1361.6 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (9 Jun)</li> <li>155,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,300 cfs (9 Jun)</li> <li>137,000 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.6 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (9 Jun)</li> <li>141,000 cfs (8 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>140,100 cfs (9 Jun)</li> <li>135,600 cfs (8 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 10 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<p><b>24-hr forecast (Glasgow, MT)</b></p> <p><b>Today:</b> A 20% chance of showers before noon. Partly sunny, with a high near 64. North wind at 7 mph becoming southeast.</p> <p><b>Tonight:</b> Partly cloudy, with a low around 47. Southeast wind between 7 and 9 mph.</p> <p><b>Saturday:</b> A 30% chance of showers and t-storms, mainly after noon. Mostly sunny, with a high near 70. Southeast wind 8 to 14 mph, with gusts as high as 20 mph.</p> <p><b>24-hr forecast (Williston, ND)</b></p> <p><b>Today:</b> A 50% chance of showers. Mostly cloudy, with a high near 60. Southeast wind 8 to 10 mph.</p> <p><b>Tonight:</b> Mostly cloudy, with a low around 46. South wind 5 to 9 mph.</p> <p><b>Saturday:</b> A 20% chance of showers and t-storms. Mostly sunny, with a high near 70. Southeast wind 5 to 8 mph. Winds increasing to 15 to 18 mph. Winds could gust as high as 24 mph.</p>	<p><b>24-hr forecast (Riverdale, ND)</b></p> <p><b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 60. North wind 5 to 8 mph becoming east. Chance of precipitation is 60%.</p> <p><b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.</p> <p><b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 23 mph.</p> <p><b>24-hr forecast (Washburn, ND)</b></p> <p><b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 57. East wind 6 to 8 mph. Chance of precipitation is 70%.</p> <p><b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. Southeast wind 5 to 8 mph.</p> <p><b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 70. Breezy, with a southeast wind 6 to 9 mph increasing to 17 to 20 mph. Winds could gust as high as 25 mph.</p>	<p><b>24-hr forecast (Pierre, SD)</b></p> <p><b>Today:</b> A 20% chance of showers and t-storms. Cloudy, with a high near 63. Northeast wind 3 to 7 mph.</p> <p><b>Tonight:</b> Mostly cloudy, with a low around 46. North wind 6 to 9 mph becoming east southeast.</p> <p><b>Saturday:</b> A 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 73. Breezy, with a southeast wind 7 to 10 mph increasing to 17 to 20 mph.</p> <p><b>24-hr forecast (Ft. Pierre, SD)</b></p> <p><b>Today:</b> A 20% chance of showers and t-storms. Cloudy, with a high near 64. North northeast wind 3 to 7 mph.</p> <p><b>Tonight:</b> Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.</p> <p><b>Saturday:</b> A 20% chance of showers and t-storms after 4pm. Partly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.</p>	<p><b>24-hr forecast (Lower Brule, SD)</b></p> <p><b>Today:</b> A 20% chance of showers and t-storms. Mostly cloudy, with a high near 64. North northwest wind 3 to 8 mph.</p> <p><b>Tonight:</b> Mostly cloudy, with a low around 47. North wind 5 to 9 mph becoming east.</p> <p><b>Saturday:</b> Mostly sunny, with a high near 74. East southeast wind 6 to 9 mph increasing to 15 to 18 mph.</p>	<p><b>24-hr forecast (Chamberlain, SD)</b></p> <p><b>Today:</b> A chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with a high near 66. North northwest wind 5 to 8 mph. Chance of precipitation is 30%.</p> <p><b>Tonight:</b> Mostly cloudy, with a low around 47. East northeast wind 5 to 7 mph.</p> <p><b>Saturday:</b> Mostly sunny, with a high near 75. East southeast wind 6 to 9 mph increasing to 15 to 18 mph. Winds could gust as high as 28 mph.</p>	<p><b>24-hr forecast (Yankton, SD)</b></p> <p><b>Today:</b> A chance of showers and t-storms, mainly before 1pm. Partly sunny, with a high near 68. North northwest wind 7 to 11 mph. Chance of precipitation is 30%.</p> <p><b>Tonight:</b> Partly cloudy, with a low around 50. North wind at 8 mph becoming east southeast.</p> <p><b>Saturday:</b> Mostly sunny, with a high near 73. East southeast wind 3 to 10 mph.</p>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 10 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Showers likely, mainly before 1pm. Cloudy, with a high near 58. North wind 6 to 9 mph becoming east. Chance of precipitation is 70%.  <b>Tonight:</b> Cloudy, then gradually becoming partly cloudy, with a low around 44. East wind 6 to 9 mph becoming calm.  <b>Saturday:</b> A 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 71. Breezy, with a southeast wind 6 to 9 mph increasing to 18 to 21 mph. Winds could gust as high as 26 mph.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> A slight chance of showers and t-storms before 1pm. Partly sunny, with a high near 70. North wind 8 to 14 mph. Chance of precipitation is 20%.  <b>Tonight:</b> Partly cloudy, with a low around 51. North wind at 9 mph becoming east southeast.  <b>Saturday:</b> Mostly sunny, with a high near 74. Calm wind becoming east northeast around 6 mph.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly cloudy, with a high near 72. North wind around 14 mph.  <b>Tonight:</b> Partly cloudy, with a low around 54. North wind at 11 mph becoming east.  <b>Saturday:</b> Mostly sunny, with a high near 77. East northeast wind 5 to 8 mph.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>





## Missouri River Flooding (Logistics) (Updated 9 Jun; 0800 CDT)

### Personnel Deployed

6 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
1 (Box Elder, MT)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
6 (Sioux City, IA)  
6 (Dakota Dunes, SD)  
6 (S. Sioux City, NE)  
4 (Hamburg, IA)

7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
8 (North Platte, NE)  
1 (Lincoln, NE)

### Equipment Deployed

**HESCO (3' and 4')**  
Issued: 48,270 LF  
On Hand: 26,435 LF  
Projected Outstanding Requirements: 39,000 LF  
  
**Sandbags**  
Issued: 13.8 M  
On Hand: 4,780,500  
Projected Outstanding Requirements: 6.5 M  
  
**Poly Rolls**  
Issued: 2,401 rolls  
On Hand: 1,691 rolls  
Projected Outstanding Requirements: 1,500 rolls  
  
**Pumps**  
Issued: 26 pumps  
On Hand: 7  
Projected Outstanding Requirements: 30 pumps

### Additional Supplies due in:

Sandbags: 495,000  
Poly Roll: 525 rolls

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 9:24 AM  
**To:** DLL-CENWO-OD-GA; [REDACTED]  
Farhat, Jody S N [REDACTED]  
[REDACTED]  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-10 Garrison Flood Fight Daily Staff Notes.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

Today's notes are attached.

[REDACTED]  
[REDACTED]  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Thursday, June 09, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.14. Yesterday's elevation: 1853.21  
Top of Exclusive Flood Control Zone: 1854.0
  - Current Tail water Elevation 1683.25. Yesterday's elevation 1683.50
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1687.5
  - Estimated Inflows 124,000 cfs, Releases: 135,000 cfs
  - Release Schedule: Went to 135,000 cfs at 8:00 am today. Increase to 140,000 cfs on Monday. Goal remains at 150,000 cfs by June 17th.
  - Spillway gates #'s 1-7 and 21-28 are open one foot. Gate #'s 8-20 are open approximately 2 feet.
  - Current release distribution: Power Plant - 15,000 cfs, Regulating Tunnels - 75,500 cfs, Spillway - 44,500 cfs.
- Fort Peck Releases are going to 60,000 cfs today and are scheduled to remain at that level.
- Missouri River Elevations:
  - Bismarck gage: Currently 17.48 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 28.33 feet, forecasted to go to 29.4 feet by Tuesday. Previous record stage: 28.0 feet.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED], cell: [REDACTED])
  - No major issues reported.
  - Rock repairs on the tailrace appear to be holding, we'll continue to monitor both banks.
  - Surveillance crews are now split. Day shift working from 0500 to 1500; Night shift from 1400-2400. We will have a daily shift change meeting at 1400 hours.
  - Current 3-week forecast shows Garrison pool exceeding 1854.4 by three tenths in July. This would be a new record pool elevation which would require that we go back to 24 hour surveillance. We will continue to monitor the forecast.
- Instrumentation (Team Leader [REDACTED], cell: [REDACTED])
  - No issues reported.
- Conservancy District wrapped up stabilization of right and left banks on the tailrace. POC, [REDACTED], cell [REDACTED]

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No major issues reported.

- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED] cell: [REDACTED] or [REDACTED] cell: [REDACTED]
- The boils at Williston are still flowing clear water. Some additional small pin boils have been located, but nothing of concern at this time.
- Trying to expedite contracting action to get a contractor in to improve the toe road, so it's available if needed.
- [REDACTED] is pursuing installation of oil coolers for the hydraulic fluid on the new pumps.

#### **Natural Resources:**

- POC's [REDACTED] cell: [REDACTED]
- East Diagonal road staffed from 6:00 am until 8:00 pm. West Diagonal will remain closed. All employees are to an orange tag with license plate number by Tuesday, June 14<sup>th</sup> for access below the dam. All government vehicles working around the dam should have magnetic USACE Emergency Management placards and/or light bars.
- NR's will be providing Visitor Assistance at the Spillway overlook weekdays, from 8:30 am to 8:00 pm, and weekends from 8:00 am until 10:00 pm. Hours may vary dependent upon weather and actual visitation.
- East diagonal gate will only be staffed from 0600-0800 hours on Saturday and Sunday. Employees will need to utilize keys for access.
- Still working "fact sheet" for visitation. Goal is to have that to NR's by close of business today.
- The body of the drowning victim at Hofflund Bay has been recovered. [REDACTED]  
[REDACTED] is working the reports to Omaha.

#### **Outside Maintenance:**

- Everyone needs to be aware that the temporary water line installed across the spillway bridge and down the East side of the dam (West of the spillway area) is now operational. Any signs of leakage in this line must be reported immediately. Notify your supervisor, [REDACTED] or I. Also need to notify the City of Riverdale, call "Clay" at (701) 471-6433 or [REDACTED]  
[REDACTED] There are shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.
- Installed a drain tile with filter fabric and placed spalls to repair the area which eroded at the west wing-wall of regulating tunnel #8. They will add sandbags further up along the wall to preclude further erosion from wave action.
- Making repairs and blading access roads needed for inspections and instrumentation readings.

#### **Power Plant:**

- Still having some issues with the camera to monitor the spillway.
- WAPA has requested that we reduce power generation over the weekend. We are currently running two units and making the releases up via the spillway and regulating tunnels.
- Unit 5 start up will not occur today as scheduled.

#### Weather/Safety:

Today for Riverdale: Overcast with rain showers at times. High around 60F. Winds E at 5 to 10 mph. Chance of rain 40%	Tonight for Riverdale: A few showers early, then clear overnight. Near record low temperatures. Low 43F. Winds light and variable. Chance of rain 30%.	Tomorrow: Sunny, along with a few afternoon clouds. High 67F. Winds SSE at 10 to 20 mph.
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- [REDACTED] have volunteered to work on evacuation plans. I will coordinate with them as soon as I get a chance.

#### Needed Resources:

- Still working the staffing plan, it is not as easy as I'd hoped due to the constant turnover in support from the District...
- [REDACTED] ordered six additional "Road Closed" signs, stands, lights and extra batteries.
- [REDACTED] working to quantify amount of rock needed to replenish emergency stockpiles.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell [REDACTED])

Home: [REDACTED].

#### OPM Notes:

- We have already had three vehicle accidents while driving off road. Although damage has been relatively minor, this needs to stop! These accidents are preventable. Take your time and know where you are driving. Use spotters when needed...
- Flood team meetings every morning at 0700 hours in the Outside Maintenance Building.
- If you are asked questions by the public and do not know the answer, do NOT guess. Take a name and number and tell them I will get back to them. A recent article published in the St. Louis Dispatch questioned the integrity of the main stem dams and has caused a lot of consternation. I can talk about the integrity of our dam and our dam safety program and have requested Public Affairs to get a story out to address this issue.

#### Garrison Project Facts:

- Top of Spillway Gates is elevation 1854 msl.
- Top of Dam is elevation 1875 msl.
- Exclusive flood control zone is elevation 1850-1854. We try to evacuate water from that zone as quickly and safely as possible.

**From:** matt bunk [bunk.matt@gmail.com]  
**Sent:** Friday, June 10, 2011 8:32 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: Interview with Jody Farhat (UNCLASSIFIED)

Thanks, Jody. How about 2 p.m.?  
-Matt

On Fri, Jun 10, 2011 at 6:07 AM, Farhat, Jody S NWD02 <[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)> wrote:

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bunk,

I would be happy to visit with you regarding the operation of the reservoir system per your request in an email to Kevin Wingert yesterday.

I'm available from 9-10 this morning or 2-3 this afternoon. Let me know what time would work best for you.

Thanks,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, June 10, 2011 8:26 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED]  
**Cc:** [REDACTED] Farhat, Jody S  
**Subject:** RE: Mainstem data for NWO sitrep 6/10/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/9 Pool Elev: 2251.4 ft-msl

24-hr change: 0.2'

6/9 Ave Inflow: 83,000 cfs

6/9 Ave Release: 53,600 cfs

6/10 Scheduled Release: 60,000 cfs

Garrison Dam (ND)

6/9 Pool Elev: 1853.2 ft-msl

24-hr change: 0.0

6/9 Ave Inflow: 124,000 cfs

6/9 Ave Release: 130,600 cfs

6/10 Scheduled Release: 135,000 cfs

Oahe Dam (SD)

6/9 Pool Elev: 1618.8 ft-msl

24-hr change: -0.1'

6/9 Ave Inflow: 135,000 cfs

6/9 Ave Release: 150,500 cfs

6/10 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/9 Pool Elev: 1419.7 ft-msl

24-hr change: 0.3'

6/9 Ave Inflow: 140,000 cfs

6/9 Ave Release: 138,700 cfs

6/10 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/9 Pool Elev: 1361.6 ft-msl

24-hr change: 0.2'

6/9 Ave Inflow: 148,000 cfs

6/9 Ave Release: 136,300 cfs

6/10 Scheduled Release: 140,000 cfs

Gavins Point Dam (NE-SD)

6/9 Pool Elev: 1207.6 ft-msl

24-hr change: 0.4'

6/9 Ave Inflow: 146,000 cfs

6/9 Ave Release: 140,100 cfs

6/10 Scheduled Release: 145,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE



Classification: UNCLASSIFIED  
Caveats: NONE

**Subject:** Phone Interview with Bill Lambrecht, St. Louis Dispatch (UNCLASSIFIED)  
**Location:** COL Ruch's Office

**Start:** Fri 6/10/2011 2:00 PM  
**End:** Fri 6/10/2011 3:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Ruch, Robert J COL NWO  
**Required Attendees:** Farmer, Monique L NWO; Farhat, Jody S NWD02; Bertino, John J Jr NWO

**Importance:** High

Classification: UNCLASSIFIED

Caveats: NONE

POC: Monique

Can you find out whether Col. Ruch can take a print interview with the St. Louis Dispatch. The reporter, Bill Lambrecht has called and said he wants to follow-up on quotes Col. Ruch has provided during the nightly press conference calls. MRJIC call center did not provide specific subject matters, but the hot topics have been whether the Corps released water soon enough, the safety of the dams following an editorial in the St. Louis Dispatch that suggested otherwise and the potential for more levee breaches following Hamburg.

If it will work for his calendar, please send me a meeting request and I will join the Col. to facilitate.

Info on reporter below (for Col. Ruch)

\*\*\*

Bill Lambrecht of STL Post Dispatch Bio  
St. Louis Post-Dispatch - Washington DC Bureau  
Address 236 Maryland Avenue, Apartment A, Washington, DC 20002-5753 - UNITED STATES  
Phone (202) 298-6880  
Fax (202) 342-1858

#### EDITORIAL PROFILE/BACKGROUND

The Washington DC bureau of the St. Louis Post-Dispatch covers U.S. senators and representatives from the states of Missouri and Illinois and any other news from the nation's capital.

#### OUTLET STATISTICS

Circulation/Audience: 210,000

Weekend Circulation/Audience: 421,022

Mr. Bill Lambrecht is the Washington bureau chief of the St. Louis Post-Dispatch. In the past, he has written predominantly about the environment and natural resources, but he now primarily focuses on covering federal government and politics. He has recently written "Presidential hopeful Clinton wins, still in it," "Conservatives: McCain must boost right-wing appeal" and "Clinton will need support of women to keep hope alive." Lambrecht prefers to receive relevant press releases and story ideas via e-mail and accepts high-resolution photos and attachments.

Lambrecht has been with the Post-Dispatch since 1983.

In 1999, he was awarded his third Raymond Clapper Prize for Washington reporting for his articles on genetic engineering from around the world. He has also won the Sigma Delta Chi Award for journalism.

He is the author of "Big Muddy Blues" and "Dinner at the New Gene Café."

He lives near Annapolis, Maryland.

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

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**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 10, 2011 7:04 AM  
**To:** Farmer, Monique L NWO  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Subject:** Re: Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Thanks, Monique--will get to you with some edits today.  
Vr/John McMahon

----- Original Message -----

**From:** Farmer, Monique L NWO  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Austin-Smith, Christina A NWD; Hargrave, Rosemary C NWD02; Johnston, Paul T HQ@ NWO; Oldham, Margaret NWO  
**Sent:** Thu Jun 09 17:54:43 2011  
**Subject:** Op-Ed Piece for Sunday circulation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir:

Per your request, I have attached a draft version of the Op-Ed piece on the Master Manual for circulation in newspapers this weekend--aiming for Sunday circulation in the major dailies throughout the region.

Please edit and return to me at your convenience and I will distribute.

Very respectfully,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

---

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Friday, June 10, 2011 12:55 AM  
**To:** McMahon, John R BG NWD  
**Cc:** DLL-NWK-SITREP  
**Subject:** NWK Weekly SITREP, 3 - 9 Jun 2011 (UNCLASSIFIED)

BG McMahon-

Sir,

The Kansas City District continues to excel while balancing numerous challenges impacting many U.S. citizens as we lead the Joplin, Missouri area post-tornado recovery efforts as well as the lower Missouri River Basin flood-fighting efforts. We continue these priorities while executing our FY 11 program and executing AED Reach back.

This week the District also hosted the [REDACTED] on Monday and Tuesday. Monday's focus was on the Kansas City Metro flood damage reduction projects as well as a full tour and briefings in our Emergency Operations Center displaying ongoing activities. We also filmed a short video supporting the American Great Outdoors initiative at Longview Lake. Tuesday's agenda included Kansas Governor Brownback and his Water Management staff, focusing on the Missouri River Recovery Program as well as ongoing efforts with respect to sediment impacts within our reservoirs. Following a tour and briefings at Perry Lake, the visit ended with an aerial overview of the Topeka levees. All in all a great visit!

We continue to build momentum in our Recovery Field Office in Joplin, Missouri. We currently have 168 personnel in the RFO. Our debris mission now has over 400 trucks collecting debris, with daily totals clearing 40,000 cy of vegetative and construction/demolition debris. Other FEMA mission assignments include: Critical Public Structures (fire stations, hospital), Schools and Temporary Housing. We appreciated the efforts of NWW's LTC Haines who filled in admirably as the deputy in the RFO for a short time!

On Friday, I'll be joining Witt Anderson, [REDACTED] and [REDACTED] representing you in our meeting with Congressman Sam Graves and Congresswoman Lynn Jenkins, as well as elected officials of St. Joseph, Elwood, KS and other smaller communities south of Rulo, NE to the St. Joseph reach of the river. I'll keep you apprised of the results of the meeting. Prior to this meeting I'll be hosting the District's annual Organization Day at Longview Lake. A noteworthy award includes the induction of a District employee into the Distinguished Gallery of District Employees.

[REDACTED] and [REDACTED] met with Holt County officials and Forest City Levee District on their plight of the upcoming flooding situation as well as discussions regarding the removal of Forest City Levee District being removed from the PL84-99 program.

Report follows:

A. NWK Top Issues:

1. [REDACTED] District Visit - NWK hosted [REDACTED] for a two day tour of district civil works projects, the on-going district Emergency Management Operations in support of the recovery of Joplin, MO and Missouri River flood fight, and a meeting with the Governor of Kansas, Sam Brownback and State directors of water resource and wildlife and parks departments. [REDACTED] was able to observe critical Kansas City metro FRM project, Missouri River ecosystem restoration projects and current flood

conditions above Kansas City. The [REDACTED] was transferred to Tulsa District in the continuance of [REDACTED] tour of Tulsa and Little Rock Districts.

2. Joplin Recovery Mission: NWK has many contract actions we are processing in support of the Joplin Recovery Mission. The majority of the initial requirements needed to stand up the RFO in Joplin have been awarded. Contracts for janitorial services, electrical repairs and upgrades, supplies, furniture and dumpsters have all been awarded in support of the RFO. NWK Chief CT-H is currently deployed to Joplin acting as Chief of the RFO. Requirements in direct support of the clean-up mission have been received for the following contract actions: debris removal, debris processing sites, abandon vehicles removal, landfill services, HAZMAT segregation, debris tracking system and three critical infrastructure requirements (fire station, school and a temporary hospital). NWK has one contract specialist from NWP that has reported to assist with this mission. Currently, several NWK contract specialists have been re-assigned from their normal workload to work contracts in support of the Joplin Recovery Mission. DCC is working with the RCC to obtain additional contracting assets.

3. NWD-RE has agreed to a purchase price for the Bootlegger Bend property. NWK-RE-C is moving forward with the acquisition process. NWK appreciates the assistance NWD RE staff provided on getting this action moving forward.

B. NWD Assistance Required: None.

C. Deployment Stats:

Currently have 1.86% deployed to AED  
14 AED - 7 on taskers waiting to deploy Other  
03 GRD  
02 OCO  
19 Total employees deployed outside of the district 2.20%  
11 Reach back support  
07 deployed reservist  
37 Total employees support OCO efforts 4.29%  
12 schedule A

D. DE Looking Ahead:

- 13-14 Jun NWK PRB's
- 15-16 Jun Hydropower Conference (Kansas City, MO)
- 22-23 Jun Ft. Leonard Wood & Speaker at AEA Breakfast
- 27 Jun Smithville Lake Tour
- 28-29 Jun RCC (Portland, OR)
- 30 Jun NWP Change of Command
- 1-10 July DE Annual Leave
- 23-25 Jul Regional SAME (Kansas City)
- 26-28 Jul MRRIC Meeting (Denver)
- 27-29 Jul RMB/RCC Meeting (Seattle)
- 29 Jul NWS Change of Command

V/r,

Tony

Building Strong!

Colonel Anthony J. Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers



[REDACTED] NWO

From: [REDACTED]  
Sent: Saturday, June 11, 2011 7:35 PM  
To: [REDACTED]  
Cc: Farhat, Jody S NWD02 [REDACTED]  
Subject: RE: FW: 'normal' dam release questions - Navigation Release Portion Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
I am going to defer the question to Jody Farhat, [REDACTED] and [REDACTED] or a Water Management Official Answer.

My understanding is that there is no specific storage amount allocation for Navigation. Likewise there is no specific storage allocation for Hydropower, Water Supply or any of the other project purposes.

The system is operated as a multipurpose system.

Other than during flood operations, which have operational precedence, where water goes through outlet works or spillway gates, the system normally operates with all the releases going through the hydropower turbines. Any flows set for navigation during a normal 8 month navigation season (April 1 thru 30 November) also goes through the hydropower turbines creating power for the Missouri River Basin. All the other purposes also pass through the turbines.

What some folks will be doing during and after the flood of 2011 is to second guess how we operate. They will look at navigation wanting its purpose to disappear. They will want to update the Master Manual etc and etc.

Let's say during normal navigation operations to support the eight month season compared with just operating for water supply we could release only 18,000 cfs compared to 28,000 cfs. That would end up being about 5 million acre feet of storage used for navigation.

Then they would say we could lower the March 1 pool from 54 million acre feet to 49 million acre feet providing more flood control. But you would be losing a substantial amount of hydropower, and water supply could suffer further reductions earlier in an extended drought; this will be a huge economic number.

Looking at the flood of 2011 forecasted at 54.6 million acre feet (1Jun11 estimate) passing Sioux City, the 5 million acre feet advantage would help a little, but the damage would still be nearly the same. Oh and with 71 million acre feet in the reservoirs as of today, the 5 million acre feet reduction would barely help the flood operation.

We must be accurate answering this question to the public so that it is in line with how we operate the system, per the Master Manual, the various acts and the law.



-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 6:02 PM  
To: [REDACTED]  
Subject: FW: FW: 'normal' dam release questions (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Can you help me answer this?

-----Original Message-----

From: [REDACTED] [mailto:[REDACTED]]  
Sent: Saturday, June 11, 2011 3:57 PM  
To: [REDACTED]  
Subject: Re: FW: 'normal' dam release questions (UNCLASSIFIED)

I thank you for your help on this but what I was looking for was the answer to this question. How much water is held in the dams to support Navigation down stream? Basically what % of the volume held is for navigation down stream?

Again I thank you guys for your efforts.

In a message dated 6/11/2011 3:08:07 P.M. Central Daylight Time,  
[REDACTED] writes:

<http://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/finalAOP2010-2011.pdf>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 6:35 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** USACE News: Fort Peck to increase levels to 65,000 cfs

U.S. Army Corps of Engineers  
Omaha District

News Release

Release No: Fort Peck PA-04  
Contact Diana Fredlund, (406) 526-3411 Ext. 4285  
Cell: (406) 526-7308 For Release: June 11, 2011

#### FORT PECK TO INCREASE RELEASE LEVELS TO 65,000 CFS

Fort Peck, Mont. - The U.S. Army Corps of Engineers' Fort Peck Dam will increase releases to 65,000 cubic feet per second (cfs) Saturday. The project released 60,000 cfs today and Fort Peck Reservoir reached 2251.6 feet mean sea level today, equaling the previous record set in 1975.

"Inflows at Fort Peck remain well above previously forecasted levels for the next six to eight days," said Jody Farhat, Chief of the Missouri River Water Management office. "As a result, releases at Fort Peck will be increased to better balance the flood storage between Fort Peck and Garrison."

The Fort Peck releases should not affect planned peak releases at the other five Missouri River dams, Farhat said.

"River levels are very high and we encourage residents living downstream to closely monitor the situation and take appropriate action if necessary," said John Daggett, Fort Peck Project Manager.

Heavy rain and melting of historic levels of snowpack over the Northwestern Division area have raised water levels of rivers and reservoirs. Portions of Montana received nearly a year's worth of rain last month, nearly filling the reservoirs.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at [MRJIC@usace.army.mil](mailto:MRJIC@usace.army.mil)

Please follow us on Facebook ([www.facebook.com/OmahaUSACE](http://www.facebook.com/OmahaUSACE)), ([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)), YouTube ([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at <http://www.nwo.usace.army.mil>. View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at <http://nwd-mr.usace.army.mil/rcc>.

-END-

If you would rather not receive future communications from U.S. Army Corps of Engineers,  
please go to [http://USACEARMY.pr-  
optout.com/OptOut.aspx?520028x24691x317904x3x1875268x24000x6](http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317904x3x1875268x24000x6) [REDACTED]

U.S. Army Corps of Engineers, [REDACTED] in: CENWO-PA, Omaha, NE 68102 United States



BUILDING STRONG®

# NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

Release No: Fort Peck PA-04  
For Immediate Release: June 25, 2011

Contact: [REDACTED]

[diana.j.fredlund@usace.army.mil](mailto:diana.j.fredlund@usace.army.mil)

## FORT PECK TO INCREASE RELEASE LEVELS TO 65,000 CFS

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You can also find flood inundation maps and local emergency management contact information on or social media sites and at <http://www.nwo.usace.army.mil>. View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at <http://nwd-mr.usace.army.mil/rcc>.

- 30 -



**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**11 June 2011**

We posted the updated reservoir forecast to the web this afternoon. There one adjustment to planned releases.

Inflows into Fort Peck have remained very high due to the rain earlier this week and the reservoir level continues to climb. Today the pool tied the previous record when it reached 2251.6 feet. As a result, releases from Fort Peck will be increased tomorrow to 65,000 cfs, 5,000 cfs above the current release rate. This will allow us to better balance the remaining flood storage in Fort Peck and Garrison. This change will not impact the planned peak releases from the remaining 5 dams. Peak releases at Garrison, Oahe, Big Bend, Fort Randall and Gavins Point remain at 150,000 cfs.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases 60,000 cfs today and will be increased to 65,000 cfs tomorrow.
- Garrison –135,000 cfs today, holding that release on Sun, then gradually stepping up to 150,000 cfs by late next week.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 137,000 cfs today, and gradually stepping up to the peak release of approximately 148,000 cfs by the middle of next week.
- Gavins Point – 145,000 cfs today, holding at that level until stepping up to the peak release of 150,000 cfs on Tuesday of next week.

. Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change

**NWO**

**From:** Steven M Robinson [smrobins@usgs.gov]  
**Sent:** Saturday, June 11, 2011 4:24 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]; Thomas, Kimberly S NWO; [REDACTED]  
[REDACTED]; [REDACTED]  
gjwiche@usgs.gov; Bradley A Sether; smrobins@usgs.gov; Robert B Swanson; [REDACTED]  
**Subject:** Below Garrison discharge measurement for June 11

Measurement was made further downstream than previous - location ; Lat 47.38 Long 101.38

discharge measurement today@ 1326  
Q=138,800 cfs  
width = 1,310 ft  
max depth 39.2 ft  
max velocity about 9.5 fps  
mean velocity about 5.6 fps

\*\*\*\*\*

Steven M. Robinson  
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S.  
Geological Survey office 701-250-7404 cell 701-220-6309

\*\*\*\*\*

NWO

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 3:56 PM  
**To:** [REDACTED]; Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** FW: Questions from 11 Jun Bismarck Mayor's Missouri River Update (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Paul and Jody:

I believe we have answers for both of the Commissioner Armstrong's questions but wanted you to know why we have called and emailed.

Burleigh County Commissioner Mark Armstrong made a presentation this morning at the Bismarck Mayor's Missouri River Update and asked a couple of questions. Here is a link to the 11 Jun update (Commissioner Armstrong's presentation toward the end):

<http://www.dakotamediaaccess.org/channel2/program-information/other-programs/special-meetings/>

1. There was a post last night on Facebook around 2200 that had Jody's quote about releases and schedule. Here is that post: (approx. 2200 on 10 Jun 11)

US Army Corps of Engineers, Omaha District "I assure you that based on the latest forecast, the highest level of release currently anticipated remains 60,000 cfs at Fort Peck and 150,000 cfs at the five lowest mainstem dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point. Peak releases are expected to continue well into August." Jody Farhat, Chief Mo. River Basin Water Mgt

<http://www.facebook.com/pages/Fort-Worth-District-US-Army-Corps-of-Engineers/188083711219308#!/OmahaUSACE>

Major concern was on the wording "currently anticipated".

2. Why was the page that used to show future releases removed? Not sure which page he is referring and have emails and phone messages asking for clarification. This page is still accessible <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Are you aware if any pages that the Corps has recently taken down or changed concerning river forecast?

[REDACTED]  
Public Affairs Specialist  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

From: [REDACTED]  
Sent: Saturday, June 11, 2011 2:54 PM  
To: Farhat, Jody S NWD02  
Cc: [REDACTED]  
Subject: FW: Media Query: Columbia Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Can you, Mike and Kevin provide us some assistance in getting these questions answered? See below.

V r,

[REDACTED]  
----- Original Message -----  
From: Keller, Rudi <[rjkeller@columbiatribune.com](mailto:rjkeller@columbiatribune.com)>  
To: [REDACTED]  
Sent: Fri Jun 10 21:02:48 2011  
Subject: Information


[REDACTED]  
I would like the following information:

1. The inflow, in acre-feet or any other convenient measure, for each of the six Missouri River dams during from Sept. 1 through May 30, such as average CFS inflow rate over each month.
2. The pool level of each lake on the first day of each month and the pool level on May 30.
3. Average monthly precipitation for each in each lake watershed expressed as a percentage of normal.
4. Watershed Snowpack as a percentage of normal and average of the past 10 years. How much of this snowpack has yet to melt? Expected inflow at maximum melt? How long will the maximum melt continue?
5. The minimum inflow point since Sept. 1. I would like a system-wide date, with flows into each lake, as well as a low inflow date for each lake if different.
6. Average daily release rate at Gavins Point Dam for each of the last nine months.
7. Minimum release rate for Gavins Point Dam, per Master Manual. If the Master Manual has different rates for different dates, please include all and the dates covered by the rate directives.
8. Dates and time periods in the last nine months when release rates were at or below minimum set in Master Manual. Please explain.

9. Lake action levels. Such as, at 2230 feet elevation, Fort Peck releases are reduced to a particular CFS rate. Or, at 1422 feet, Big Bend releases 50,000 CFS.

10. Have the dams ever operated as a single unit as they are at this time? In other words, have the dams releases ever been coordinated so that five of the six match each other to control a flood?

11. Is it possible to calculate the maximum flow rate in the past nine months that would have been occurring at Gavins Point absent the six upstream dams?

 know this is a long list. I'll call on Monday.

RUDI KELLER  
Columbia Daily Tribune  
(573) 815-1709 (office)  
(573) 382-6583 (mobile)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:45 PM  
**To:** [REDACTED]  
**Subject:** FW: Riverwatch June 11, 2011 #2011MoRivFlood (UNCLASSIFIED)  
**Attachments:** 611NR-RIVERWATCH6-11.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:47 PM  
**To:** [REDACTED]  
**Subject:** Riverwatch June 11, 2011 #2011MoRivFlood

Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

- \* 2251.5 ft msl
- \* 24-hr Change (+0.2ft)

Daily Avg. Inflow

- \* 81,000 cfs (10 Jun)
- \* 83,000 cfs (9 Jun)

Daily Avg. Release

- \* 58,900 cfs (10 Jun)
- \* 53,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

- \* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 60,000 cfs on 11 June.
- \* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Pool Elevation (Year)

- \* 2251.6 msl (1975)

Record Flow (Year)

- \* 35,000 cfs (1975)

Projected Record Flow (Date)

- \* 60,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation

- \* 1853.1 ft msl
- \* 24-hr Change (-0.1 ft)

Daily Avg. Inflow

- \* 125,000 cfs (10 Jun)
- \* 124,000 cfs (9 Jun)

Daily Avg. Release

- \* 133,500 cfs (10 Jun)
- \* 130,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

- \* 1854 ft msl

River Stage (Bismarck)

- \* 17.51 (0715 CDT 11 Jun)
- \* Flood stage - 16 ft
- \* 17.48 (0615 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)

- \* 1854.8 msl (1975)

Record Flow (Year)

- \* 65,000 cfs (1975)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Oahe (In operation since 1962)

Midnight Elevation

- \* 1618.8 ft msl
- \* 24-hr Change (-0.1 ft)

Daily Avg. Inflow

- \* 132,000 cfs (10 Jun)
- \* 135,000 cfs (9 Jun)

Daily Avg. Release

- \* 150,500 cfs (10 Jun)
- \* 150,500 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

\* 1620 ft msl

River Stage (Pierre)

\* 18.9 (0715 CDT 11 Jun)

\* Flood stage - 15 ft

\* 18.88 (0630 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

\* Releases have been stepped up to 150,000 cfs.

\* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

\* 1618.7 msl (1995)

Record Flow (Year)

\* 59,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

\* 1419.8 ft msl

\* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

\* 148,000 cfs (10 Jun)

\* 140,000 cfs (9 Jun)

Daily Avg. Release

\* 147,000 cfs (10 Jun)

\* 138,700 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

\* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

\* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1362.0 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 156,000 cfs (10 Jun)

\* 148,000 cfs (9 Jun)

Daily Avg. Release

\* 136,900 cfs (10 Jun)

\* 136,300 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.8 ft msl

\* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

\* 146,000 cfs (10 Jun)

\* 146,000 cfs (9 Jun)

Daily Avg. Release

\* 143,400 cfs (10 Jun)

\* 140,100 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information: <http://www.nwd-mr.usace.army.mil/rcc> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340649x390501>>

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

24-hr forecast (Glasgow, MT)

Today: Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.

Tonight: Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.

Sunday: Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.

24-hr forecast (Williston, ND)

Today: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

24-hr forecast (Riverdale, ND)

Today: Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Washburn, ND)

Today: Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.

Tonight: 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.



Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.

24-hr forecast (Chamberlain, SD)

Today: Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.

Tonight: Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.

Sunday: Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.

24-hr forecast (Yankton, SD)

Today: Sunny, with high near 72. North wind 6 to 8 mph becoming east.

Tonight: Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

24-hr forecast (Sioux City, IA)

Today: Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.

Tonight: Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

24-hr forecast (Omaha, NE)

Today: Mostly sunny, with high near 76. North wind around 7 mph becoming east.

Tonight: 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340648x1731896>>

Internet: <http://www.nwo.usace.army.mil> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340647x1212614>>

Facebook: <http://www.facebook.com/OmahaUSACE> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1340646x693332>>

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<<http://us.vocuspr.com/Url.aspx?520028x1340650x909782>>

If you would rather not receive future communications from U.S. Army Corps of Engineers Omaha District, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317901x3x1874483x24000x6&E>> [REDACTED]

[REDACTED] U.S. Army Corps of Engineers Omaha District, 1 [REDACTED] Omaha, NE 68102 United States

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>2251.5 ft msl</li> <li>24-hr Change (+0.2ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>81,000 cfs (10 Jun)</li> <li>83,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>58,900 cfs (10 Jun)</li> <li>53,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2234 ft msl – 2246 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>2246 ft msl – 2250 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>2250 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 60,000 cfs on 11 June.</li> <li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>2251.6 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>35,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>60,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1853.1 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>125,000 cfs (10 Jun)</li> <li>124,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>133,500 cfs (10 Jun)</li> <li>130,600 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1837.5 ft msl – 1850 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1850 ft msl – 1854 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1854 ft msl</li> </ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"> <li>17.51 (0715 CDT 11 Jun)</li> <li>Flood stage – 16 ft</li> <li>17.48 (0615 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Spillway gates are being used to pass floodwaters.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1854.8 msl (1975)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>65,000 cfs (1975)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1618.8 ft msl</li> <li>24-hr Change (-0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>132,000 cfs (10 Jun)</li> <li>135,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>150,500 cfs (10 Jun)</li> <li>150,500 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1607.5 ft msl – 1620 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1617 ft msl – 1620 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1620 ft msl</li> </ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"> <li>18.9 (0715 CDT 11 Jun)</li> <li>Flood stage – 15 ft</li> <li>18.88 (0630 CDT 10 Jun)</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases have been stepped up to 150,000 cfs.</li> <li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1618.7 msl (1995)</li> </ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"> <li>59,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1419.8 ft msl</li> <li>24-hr Change (+0.1 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>148,000 cfs (10 Jun)</li> <li>140,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>147,000 cfs (10 Jun)</li> <li>138,700 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1420 ft msl – 1423 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1422 ft msl – 1423 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1423 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> <li>Reservoir will remain essentially level at 1420 feet.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1422.1 msl (1991)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>74,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1362.0 ft msl</li> <li>24-hr Change (+0.4 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>156,000 cfs (10 Jun)</li> <li>148,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>136,900 cfs (10 Jun)</li> <li>136,300 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1350 ft msl – 1375 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1365 ft msl – 1375 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1375 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1372.2 msl (1997)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>67,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"> <li>1207.8 ft msl</li> <li>24-hr Change (+0.2 ft)</li> </ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"> <li>146,000 cfs (10 Jun)</li> <li>146,000 cfs (9 Jun)</li> </ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"> <li>143,400 cfs (10 Jun)</li> <li>140,100 cfs (9 Jun)</li> </ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1204.5 ft msl – 1210 ft msl</li> </ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"> <li>1208 ft msl – 1210 ft msl</li> </ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"> <li>1210 ft msl</li> </ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"> <li>Releases will be stepped up to 150,000 cfs by mid June.</li> </ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"> <li>1209.7 msl (2010)</li> </ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"> <li>70,000 cfs (1997)</li> </ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"> <li>150,000 cfs (Mid June)</li> </ul>



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b> <b>Today:</b> Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%. <b>Tonight:</b> Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%. <b>Sunday:</b> Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b> <b>Today:</b> Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph. <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>24-hr forecast (Washburn, ND)</b> <b>Today:</b> Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Pierre, SD)</b> <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph. <b>24-hr forecast (Ft. Pierre, SD)</b> <b>Today:</b> 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph. <b>Tonight:</b> Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.	<b>24-hr forecast (Lower Brule, SD)</b> <b>Today:</b> Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph. <b>Tonight:</b> 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph. <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.	<b>24-hr forecast (Chamberlain, SD)</b> <b>Today:</b> Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph. <b>Tonight:</b> Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%. <b>Sunday:</b> Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b> <b>Today:</b> Sunny, with high near 72. North wind 6 to 8 mph becoming east. <b>Tonight:</b> Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%. <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

Source of information: <http://www.weather.gov>



US Army Corps  
of Engineers  
Chattanooga District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%.  New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%.  New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.  <b>Tonight:</b> Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly sunny, with high near 76. North wind around 7 mph becoming east.  <b>Tonight:</b> 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

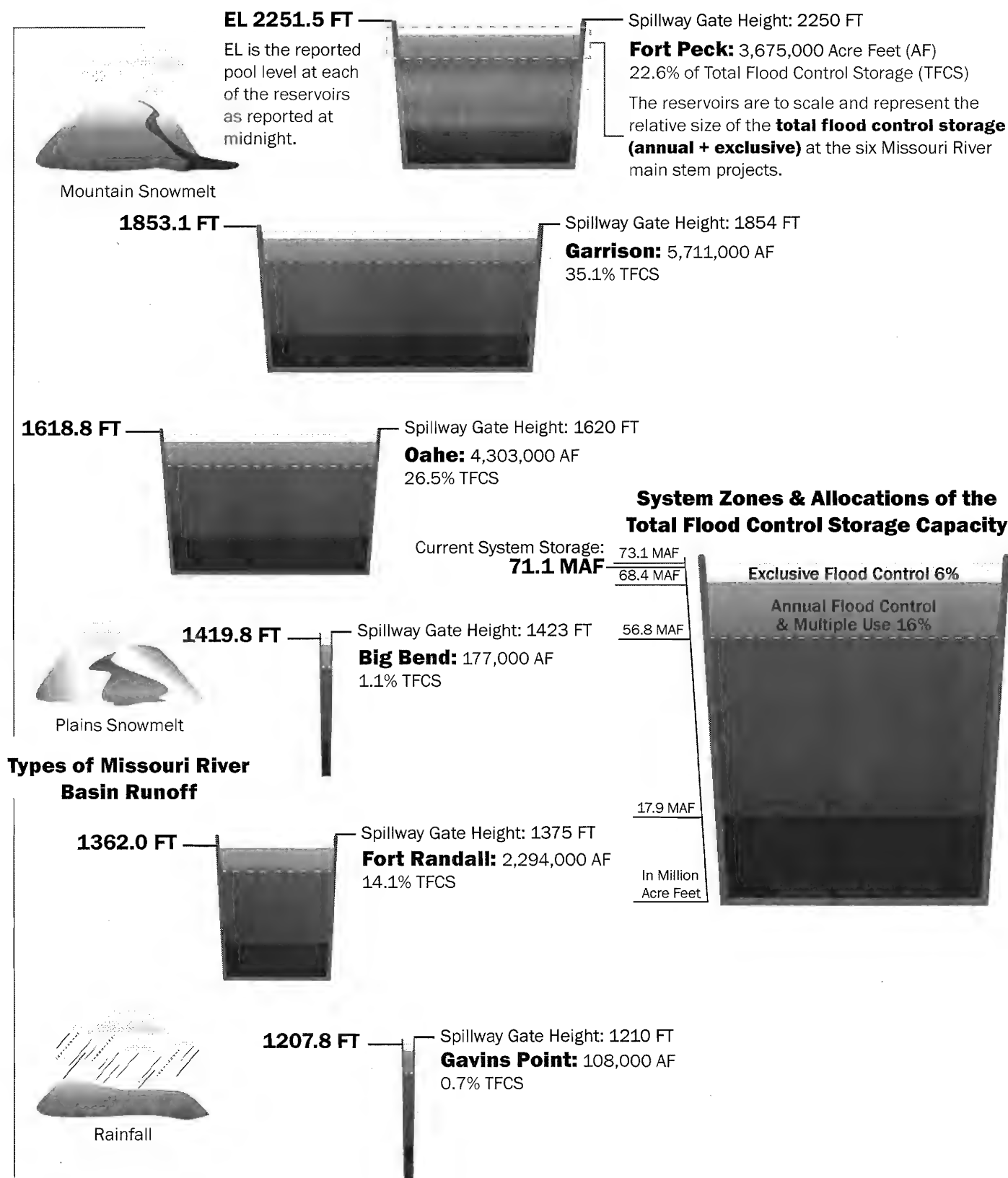
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# Missouri River Main Stem Reservoir System

**Midnight Elevation (EL) Forecast: June 11, 2011** (feet above mean sea level)



[REDACTED] NWO

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From: [REDACTED]  
Sent: Saturday, June 11, 2011 2:31 PM  
To: [REDACTED]  
Cc: [REDACTED] Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
Subject: RE: Fort Peck Spillway June 10,2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I should have added that flows were about 47,000 cfs yesterday through the spillway.

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 1:21 PM  
To: [REDACTED]  
Cc: [REDACTED] Thomas, Kimberly S NWO; [REDACTED] Farhat, Jody S NWD02; [REDACTED]  
Subject: Fort Peck Spillway June 10,2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All:

Western Area Power took this picture yesterday while they were doing their line patrols.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:21 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Thomas, Kimberly S NWO; [REDACTED] NWO; Farhat, Jody  
S NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Fort Peck Spillway June 10,2011 (UNCLASSIFIED)  
**Attachments:** Fort Peck Spillway June 10,2011.JPG

Classification: UNCLASSIFIED  
Caveats: NONE

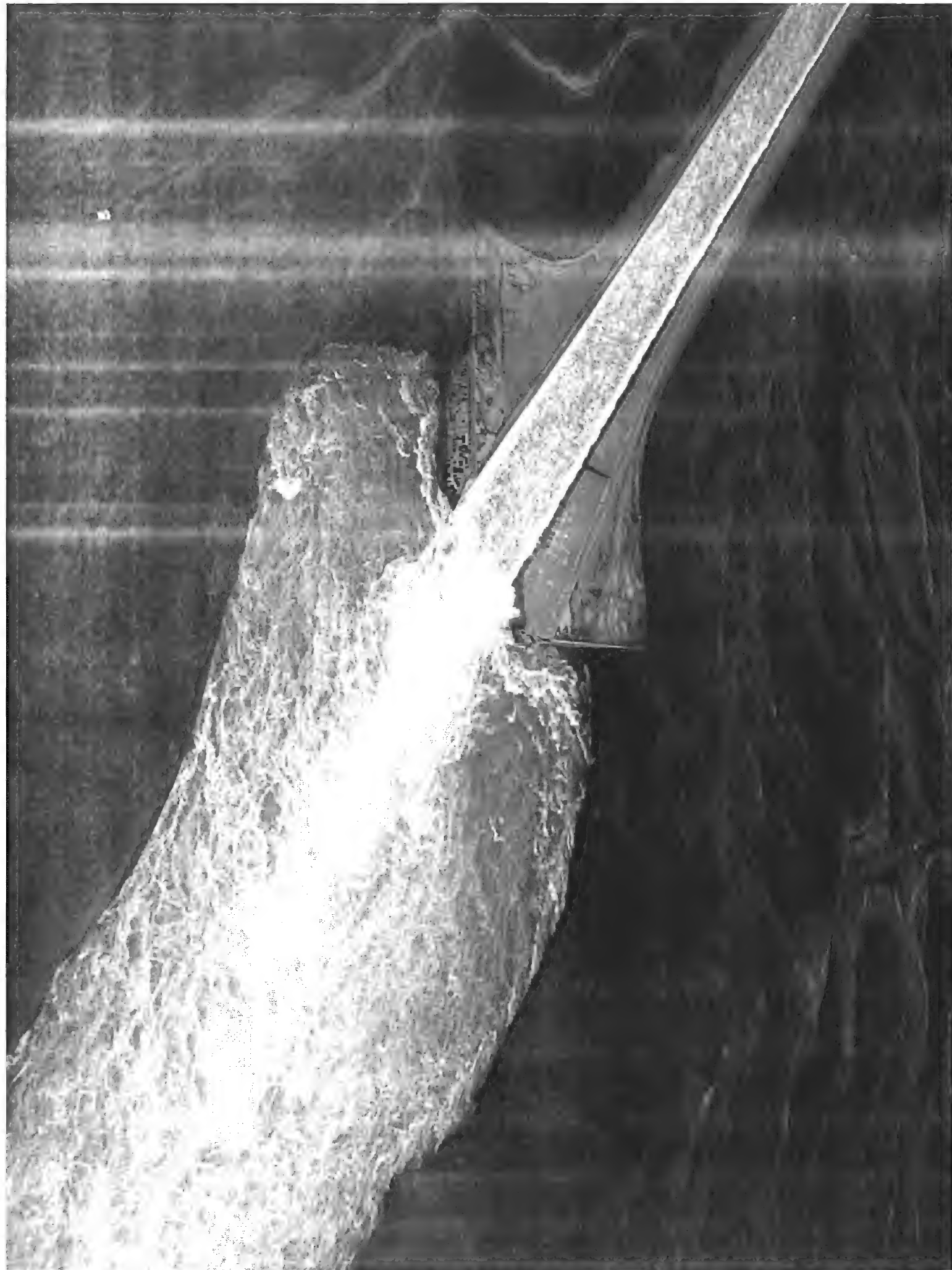
All:

Western Area Power took this picture yesterday while they were doing their line patrols.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE





[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 2:10 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Missouri River at Yankton Measurement

From Roger Haschemeyer with USGS, flow measurement on Missouri River at Yankton is as follows:

Missouri River at Yankton

Date/Time 06-11-2011 @ 1310  
Gage Height 24.30  
Discharge 142,600 cfs  
Mean Velocity 5.02 ft/sec  
Air temp. 22.5  
Water temp. 17.3

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED]  
[REDACTED]

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 1:58 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** FW: Wolf Point Measurement  
**Attachments:** Helena 6-11-11.JPG

-----Original Message-----

From: Wayne R Berkas [<mailto:wrberkas@usgs.gov>]

Sent: Saturday, June 11, 2011 1:52 PM

To: [REDACTED] MI: [REDACTED] 1 D  
[REDACTED] MI: [REDACTED]  
[REDACTED] MI: [REDACTED]

Cc: Timothy J Morgan

Subject: Wolf Point Measurement

Missouri River near Wolf Point (06177000)

Date/Time	06-10-2011 @ 1641
GH	13.90
Discharge	84,600 cfs
Rated	Fair

Talked to guys who made the measurement and they said that a lot of the banks are sloughing into the river. While they were there, everything looked stable, but I think the big gage height change is due to the bank sloughing into the river. I'll try to get someone there tomorrow and possibly install another orifice or gage.

And It finally quit raining/snowing here is a picture of the mountains south of Helena today. Usually at this date, there is no snow left in the mountains.

If you need to talk to me, I'll be in the office for another 15 minutes. Or you can always call my cell (406) 461-3750.

Wayne R. Berkas  
Montana Data Section Chief  
U.S. Geological Survey  
3162 Bozeman Ave.  
Helena, MT 59601  
(406) 457-5903  
wrberkas@usgs.gov



[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 1:26 PM  
**To:** [REDACTED] Ruch, Robert J COL NWO; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FLOOD Col. Ruch's Op-Ed letter (UNCLASSIFIED)  
**Attachments:** NR RUCH OP ED 6-11-11 (FINAL).docx

Classification: UNCLASSIFIED

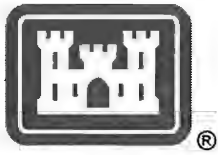
Caveats: NONE

Col. Ruch--Final version for your file

[REDACTED] Please post

Classification: UNCLASSIFIED

Caveats: NONE



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# **NEWS RELEASE**

For Immediate Release: June 25, 2011

Contact: Joint Information Center 402-996-3877

[mrjic@usace.army.mil](mailto:mrjic@usace.army.mil)

## **Col. Ruch: Upper Missouri dams safe, functioning, operating as designed**

**By Col. Robert J. Ruch  
Commander, Omaha District  
U.S. Army Corps of Engineers**

The U.S. Army Corps of Engineers is engaged in an epic flood fight. For the last few months, we have focused on managing heavy inflows caused by record snowpack and rainfall in the Upper Missouri River basin. On May 1, the Corps projected summer releases of 57,500 cubic feet per second from Gavins Point Dam and were on schedule to evacuate the runoff from the record snowpack.

Then storms dumped eight inches of rain over Montana and North Dakota and changed the entire scenario. We will be managing these and subsequent inflows for the next several months as record runoff surges through the main stem system.

As Commander of the Omaha District U.S. Army Corps of Engineers, I assure you that we make public safety our number one priority. We are also intensely focused on providing the public with timely, accurate and useable information.

In today's information age, we are confronted with reported assertions that are inaccurate and may induce fear and uncertainty without merit. Such assertions published and circulated in the past few weeks would have the public believe that the main stem dam system on the Upper Missouri could fail.

I disagree with those assertions.

I won't lend unproven assertions any credence by repeating them or analyzing them point by point. I do, however, want the public to know this:

The dams on the Upper Missouri – Fort Peck, (Mont.), Garrison Dam (N.D.), Oahe Dam, Big Bend Dam, and Fort Randall Dam (all S.D.) and Gavins Point (S.D./Neb.) -- are fully functional and operating as designed.

The system is protecting the public from unregulated flows. Unregulated flows – which

[Type text]

occur when flood waters flow uncontrolled in a spillway -- would result in significantly more damage. There is no evidence to suggest an emergency situation at any of our dams, and all projects are operating within their design parameters.

Public safety is paramount. As part of this responsibility, we long ago implemented a comprehensive dam safety program at each of our dams. We conduct daily, yearly and periodic (every 5 years) inspections, teaming with state dam safety agencies, Northwestern Division and other agencies to ensure the safety of these structures.

Our extensive instrumentation program allows us to closely monitor areas of interest such as seepage pressure and any minor movement. We've also re-evaluated seismic designs as the state of practice has evolved over recent decades. People need to remember that although our flood control storage is near capacity, dam functionality is not. There is no danger that any of our dams will be overtopped.

It is worth noting that all six dams have experienced similar pool levels several times over their service life. We make it standard operating procedure to increase the level of surveillance as water levels rise so that we can best manage the risks associated with dams of this size and importance. Our elevated surveillance on these dams has not revealed any significant issues or concerns regarding operation at these high pools and or record releases.

In closing, I have full confidence in the operational integrity of our main stem dams. Our dams are inspected and maintained on rigid schedules. Holding back volumes of water is what they were designed to do, and these structures have not only met but surpassed these expectations. We are respectful of these structures and pledge to remain vigilant to continually evaluate the performance and reliability of these projects into the future.

The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Please call us if you have questions – our Joint Information Center number is 402-996-3877. You can also go to our website at <http://www.nwo.usace.army.mil/>

# # #

**NWO**

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 1:24 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

<file:///C:/DOCUME~1/g6pa9krq/LOCALS~1/Temp/msohtmlclip1/01/clip\_image001.jpg>

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NEWS RELEASE

For Immediate Release: June 11, 2011

Contact: Joint Information Center 402-996-3877

mrjic@usace.army.mil

Col. Ruch: Upper Missouri dams safe, functioning, operating as designed

By Col. Robert J. Ruch

Commander, Omaha District

U.S. Army Corps of Engineers

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The Corps is 100 percent committed to this flood fight and we will continue to manage this record event on the river with public safety as our top priority. We will continue to use best engineering practices to manage the flood waters in the Missouri River main stem dam and reservoir system as the fight moves into summer.

Please call us if you have questions - our Joint Information Center number is 402-996-3877. You can also go to our website at <http://www.nwo.usace.army.mil/> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1307243x1267531>>

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# # #

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NEWS RELEASE

<<http://us.vocuspr.com/Url.aspx?520028x1307244x1786904>>

If you would rather not receive future communications from U.S. Army Corps of Engineers, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317899x3x1875268x24000x6&Email=Jody.S.Farhat%40usace.army.mil>>

U.S. Army Corps of Engineers, 1616 Capitol Ave., Omaha, NE 68102 United States

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:45 AM  
**To:** [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: need some good analogies if possible (UNCLASSIFIED)  
**Attachments:** Conversions for 150,000 cfs.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

I tried to come up with some ways of describing the Gavins Point Dam releases. They were for each of the reservoir, total System, Empire State Building, and Omaha Metro area daily water use.

[REDACTED]

Missouri River Basin Water Management Division Northwestern Division Corps of Engineers

[REDACTED]

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Saturday, June 11, 2011 8:57 AM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02  
**Subject:** FW: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Here are some numbers [REDACTED] played around with for me too.....would like to try & fill something up if possible, not just cover a state. I also liked your ideas about how rapidly we would fill up Gavins with the current inflows.

Anything to try and paint a picture the general public can understand would be very, very helpful!

Thanks!! [REDACTED]

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Thursday, June 09, 2011 12:48 PM  
**To:** [REDACTED]  
**Subject:** RE: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

OK. How about 10.5 MAF is enough water to fill the Memorial (Cornhusker) Stadium about 5000 times. This stadium has a capacity of about 87,000 fans.

Since this the largest vessels (besides reservoirs) that I can think of in the area, I would perhaps use the State of Iowa analogy for the 44.5 MAF.

#### The Math

There is no good volume statistics for Memorial Stadium, but Cowboys Stadium which holds 100,000 fans has a volume of 104,000,000 cubic feet. 1 acre foot = 43560 cubic feet. Therefore Cowboy stadium has a capacity of 2,387 AF or could be filled 4,398 times with 10.5 MAF. Adjusting Memorial Stadium for less capacity than Cowboy Stadium gets me to approximately filling it 5000 times.

#### Others

The following analogy was used by USGS for the 1993 flood "The peak discharge in August 1993 was measured at 485 million gallons per minute or 1,080,000 cubic feet per second—a rate sufficient to fill Busch Stadium about every 65 seconds." This puts Busch Stadium at about 70,200,000 cubic feet of volume. I am estimating the Cornhusker Stadium at 90,500,000 cubic of volume.

Hope this is helpful -

[REDACTED]  
Northwestern Division Economist  
CENWD-PDD  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 09, 2011 9:54 AM  
To: [REDACTED]  
Subject: need some good analogies if possible (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
So here's what I'm trying to do if possible -- to provide a visual that most people can understand of the size of a container that would hold 1 million acre feet of water.

The numbers I'm most interested in trying to convey, are 10.5 MAF (the amount of runoff that flowed into the system in the month of May -- the second highest 1 month amount on record)

Also, 44 MAF (the total amount of runoff projected from March through July) -- this is also a record, exceeding the 40 MAF in 1881, which was the baseline amount for which this system was designed.

Thanks!!! [REDACTED]  
[REDACTED]

Attorney/Advisor, U.S. Army Corps of Engineers Office of Counsel, Northwestern Division,  
Portland OR [REDACTED] Attorney Client and/or Attorney Work Product-- DO NOT RELEASE UNDER  
FOIA OR OUTSIDE USACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Flow	cfs to AF/day	Days	Acre-feet	"Normal" Top of Pool	30-days @ 150,000	Months to Fill	Days to Fill	Flood Control Storage (AF)	30-days @ 150,000	Months to Fill	Days to Fill
150,000	1.9835	1	297,521	18,463,000	8,925,620	2.07	62.06	3,675,000	8,925,620		
150,000	1.9835	30	8,925,620	23,821,000	8,925,620	2.67	80.07	5,711,000	8,925,620		
				23,137,000	8,925,620	2.59	77.77	4,303,000	8,925,620		
150,000	7.48	1,122,000		1,621,000	8,925,620	0.18	5.45	0	8,925,620		
ft3/sec	gals/ft3	gals/sec		5,418,000	8,925,620	0.61	18.21	2,294,000	8,925,620		
				393,000	8,925,620	0.04	1.32	0	8,925,620		
				72,853,000		8.16	245	15,983,000	8,925,620	1.790688	53.72

Typically do not use Flood Control storage

Empire State Building	Ave Area of	Height	cubic Feet	Acre-feet
Floor area	each floor			
2,768,591	102	27,143	1000 27,143,049	42,411
Population gal/person				
Omaha Metro	Gallons	Gal per second		
840,000	100 84,000,000	1,122,100	74.859638	Omaha Metro Area's daily water supply needs could be met in just 75 seconds with the Gavins Point release of 150,000 cfs.
	365	24	60	31536000 seconds per year
				75 seconds
				420,480 times per year that it would be met
				1,152

Approximately 100 billion gallons per day  
 96,949,440,000 84,000,000 1154.16  
 gallons per day gallons days it was met  
 released from GP Needed

3.16 Years that one day of water at 150,000 cfs would meet Omaha Metro Area's water supply needs @ 100 gal per capita per day.

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:39 AM  
**To:** [REDACTED]; Farhat, Jody S  
[REDACTED]  
**Cc:** [REDACTED]; Farhat, Jody S NWD02, [REDACTED]  
[REDACTED]  
[REDACTED]; Kevin W CPT HQ; M [REDACTED]  
Missouri River Basin Water Management Division Situation Report of 6-11-11  
(UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-11-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-11-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows continue to occur into Fort Peck Reservoir from primarily rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/11/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	81.0	58.9	2250	2251.5	0.2
Garrison	125.0	133.5	1854	1853.1	-0.1
Oahe	132.0	150.5	1620	1618.8	-0.1
Big Bend	148.0	147.0	1423	1419.8	0.1
Fort Randall	156.0	136.9	1375	1362.0	0.4
Gavins Point	146.0	143.4	1210	1207.8	0.2

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). Also, less of the exclusive flood control storage is being used at Garrison and Oahe. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. Because the spillway gates are open at Fort Peck and the reservoir is now being surcharged over the top of the exclusive flood control zone, the percent of exclusive has become negative. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project. There are no plans at this time to go above 1854, the top of exclusive, at Garrison even though all 28 spillway gates are open.



**Table 2. Reservoir Storage Data (through 0000 hrs 6/11/11)**

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,837	18,463	-374	971	-39
Garrison	23,474	23,821	347	1,489	23
Oahe	22,663	23,137	474	1,102	43
Big Bend	1,607	1,798	191	60	100
Fort Randall	4,150	5,418	1,268	985	100
Gavins Point	388	450	62	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the releases 1 week out will be at the currently anticipated maximum releases at all six reservoirs. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/11/11)**

Reservoir	Yesterday	Forecast	7 days out	14 days out	Pre-2011
	kcfs	Today	18 June	25 June	Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	58.9	60.0	60	60	35
Garrison	133.5	135.0	150	150	65
Oahe	150.5	150.0	150	150	59
Big Bend	147.0	150.0	150	150	74
Fort Randall	136.9	137.0	148	148	67
Gavins Point	143.4	145.0	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/11/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.5	20-21	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.4	35-37	mid-Jun thru July
Decatur, NE	35	37.2	40-42	mid-Jun thru July
Omaha, NE	29	31.3	34-36	mid-Jun thru July
Nebraska City, NE	18	23.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.4	27-32	mid-Jun thru July
Kansas City, MO	32	25.2	30-39	mid-Jun thru July
Waverly, MO	20	24.3	27-31	mid-Jun thru July
Boonville, MO	21	22.5	27-33	mid-Jun thru July
Hermann, MO	21	23.0	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still 3 to 4 feet below the constructed levee crests.

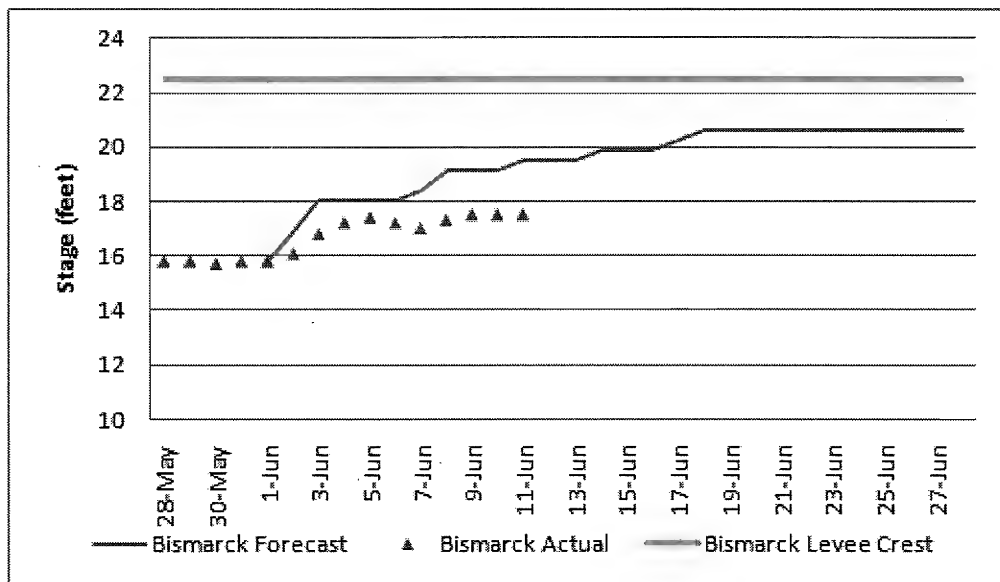


Figure 1. Missouri River stages at Bismarck, North Dakota.

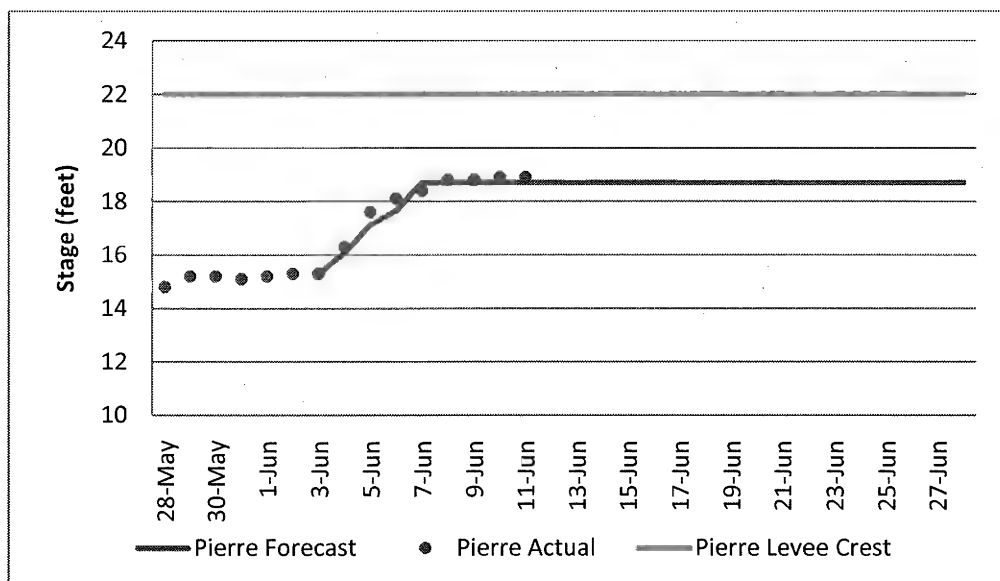


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

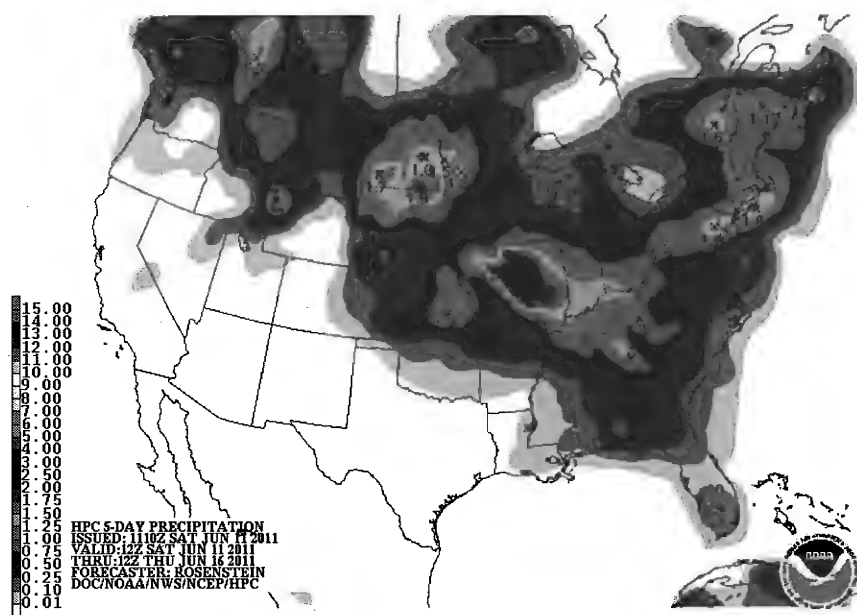


Figure 3. 5-day total QPF ending 0700 Thursday, June 16, 2011.

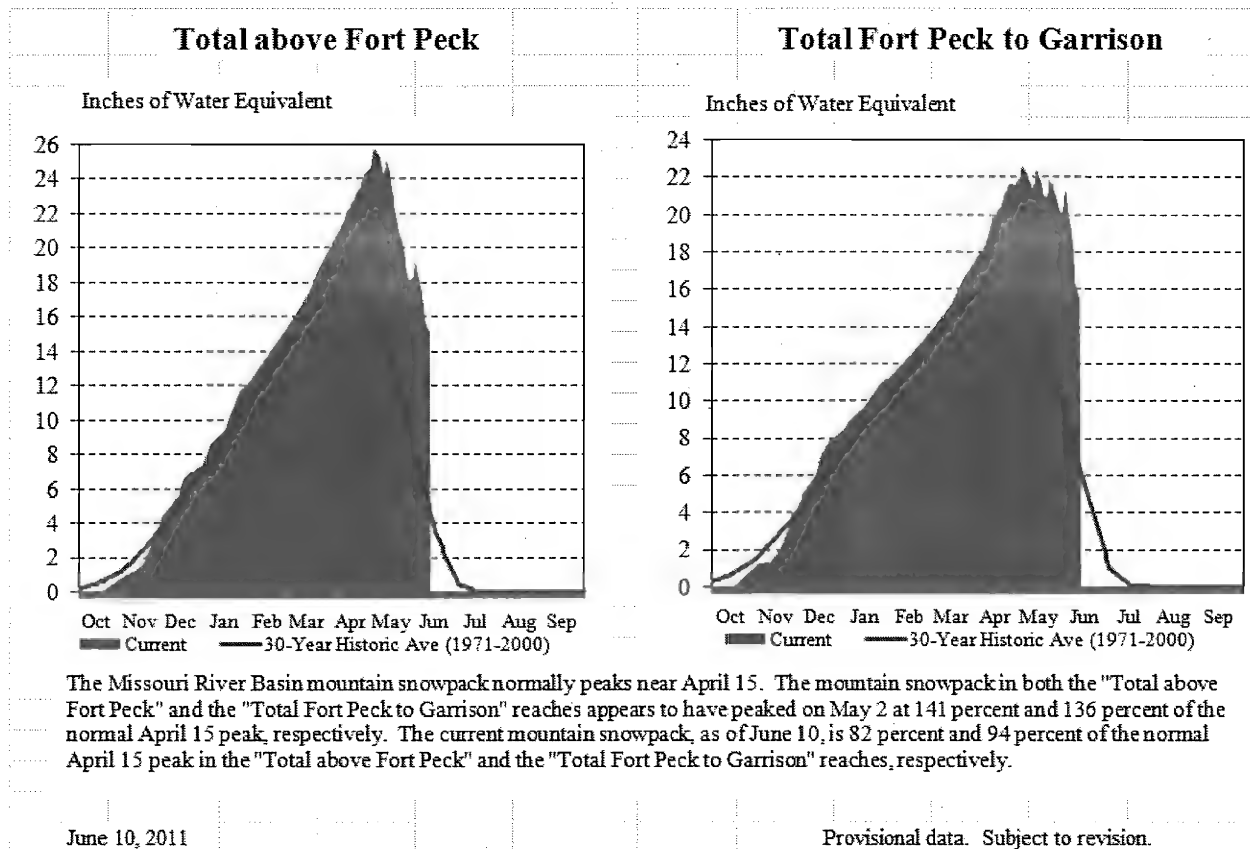


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 10, 2011.

## Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg should the L-575 levee fail. Issues have surfaced on the capability of this levee to make it through the flood due to three slump failures in the past week at river stages that have not yet exceeded those experienced in the high flows of 2010.

Figure 5 is a plot showing the nearest gage 0600 stages for 2010 and 2011 (through today), both years with high river stages at Nebraska City. This figure shows that the river level has been relatively static for the last 14 days at a level just under the maximum that occurred in 2010. The forecasts for river stages at Nebraska City for the next week have been revised down slightly to show a rise to 25.1 feet by next Friday, June 17.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The Kansas City District's floodplain inundation maps are now available on its Flood Response Information website. Overtopping of levees information is also available from both districts.

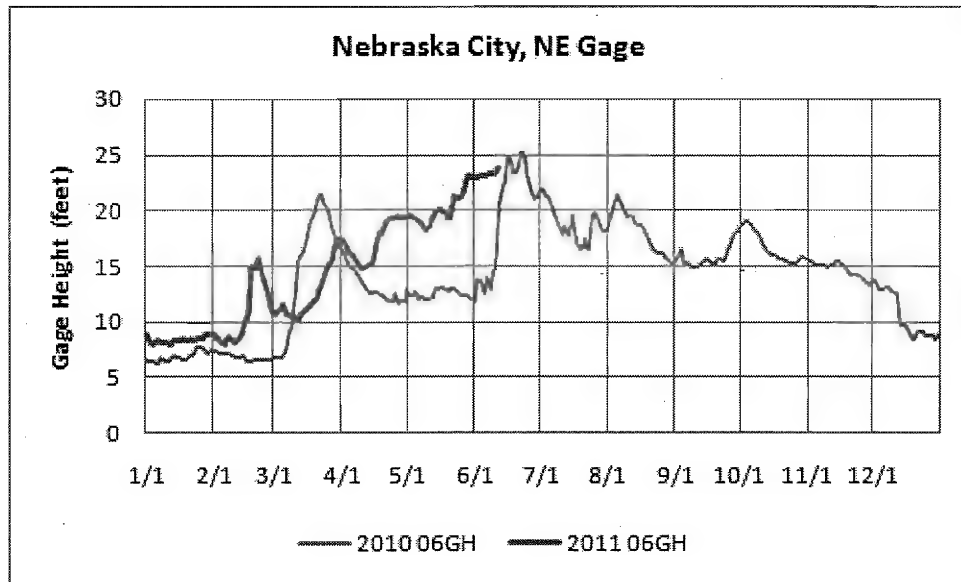


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

Heavy rains did not occur for the first day in a week in the basin. Figure 6 shows the amount of rain that fell yesterday in the basin and surrounding area of the Central Region of the United States.

Missouri Basin RFC Pleasant Hill, MO: Current 1-Day Observed Precipitation  
Valid at 6/11/2011 1200 UTC- Created 6/11/11 15:48 UTC

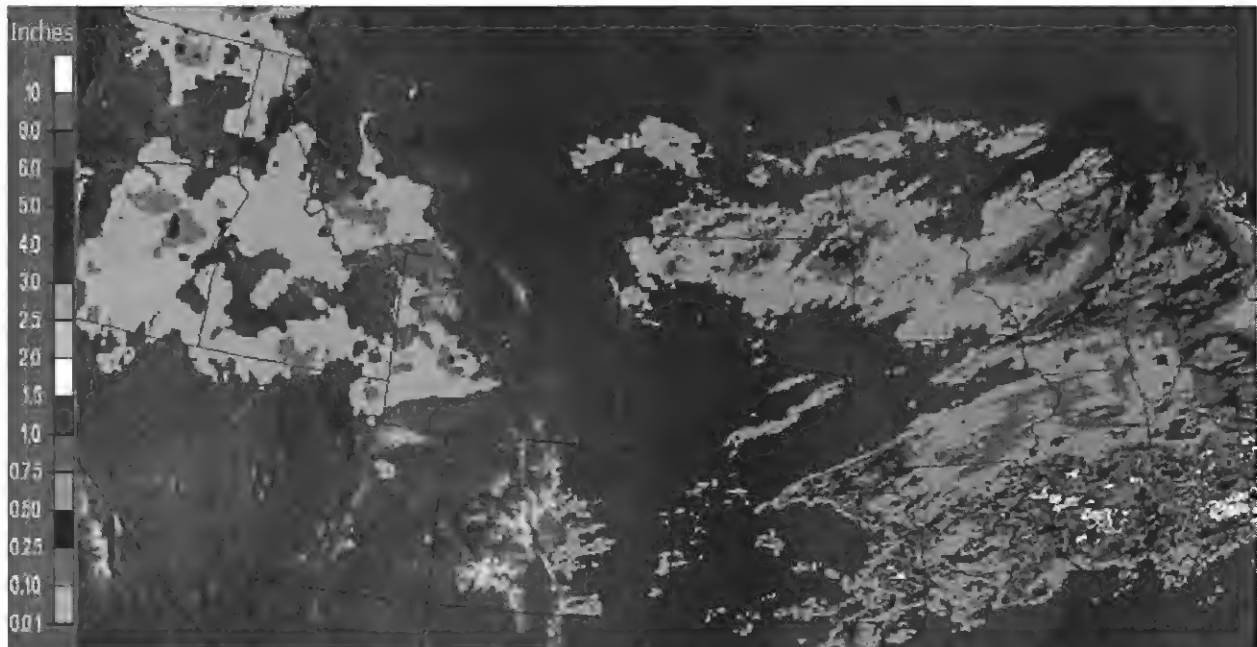


Figure 6. Rainfall on the Central Region of the United States for June 10, 2011.

**NWO**

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:18 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] Michael A NWD02; [REDACTED]  
[REDACTED] NWD02; [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: Spillway Gate Elevations (UNCLASSIFIED)  
**Attachments:** 06 11 11.pdf; Spillway Gates 6.11.11.xlsx

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 8:54 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Spillway Gate Elevations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hello [REDACTED]  
[REDACTED] asked me to forward this on to you.  
If you have any questions, don't hesitate to ask.  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

# Fort Peck Summary

Unit	Status	MW	MVAR	kV	Amps	Disc.
1	Generating	41.9	5.0	14.0	1736	2891
2	Generating	21.8	-0.1	14.1	894	1170
3	Generating	49.4	-1.9	14.3	1995	3363
4	Generating	47.0	-4.8	14.0	1945	3266
5	Generating	46.9	-4.9	14.0	1940	3194

Total 207.0 -7.0 13883

Headwater Elevation 2251.58 Crnt Total Unit Discharge 13883

Tailwater Elevation 2035.30 Crnt Spillway Discharge 46807

Net Head 216.28 Crnt Outlet Tunnel Disc 0

Ambient Temperature 58.2 Crnt Total Plant Disc 60697

Water Temperature 46.7 Crnt Hr Avg Plant Disc 60833

Wind Direction E Daily Avg Plant Disc 60588

Wind Speed 5.8 Current Hr Rain Fall 0.00

Main Menu

08:33AM Jun 11, 2011



# Fort Peck Spillway

Gate	Ft In	CFS Out	CFS In	Ft Out
1	2.8	2875	0	0.0
2	2.8	2875	0	0.0
3	2.8	2875	0	0.0
4	2.8	2875	0	0.0
5	2.9	2976	0	0.0
6	2.9	2976	0	0.0
7	2.9	2976	0	0.0
8	2.9	2976	0	0.0
9	2.9	2976	0	0.0
10	2.9	2976	0	0.0
11	2.9	2976	0	0.0
12	2.9	2976	0	0.0
13	2.8	2875	0	0.0
14	2.8	2875	0	0.0
15	2.8	2875	0	0.0
16	2.8	2875	0	0.0

Current Spillway Discharge 46807

Current HR Avg. Discharge	Spillway	Project
Previous HR Avg. Discharge	46820 cfs	60832 cfs
Running Daily Avg. Discharge	46816 cfs	60840 cfs
	46795 cfs	60588 cfs

Main Menu



## FORT PECK SPILLWAY

DATE	6/11/2011		TIME	0833
GATE				ELEVATION
1				2252.8
2				2252.8
3				2252.8
4				2252.8
5				2252.9
6				2252.9
7				2252.9
8				2252.9
9				2252.9
10				2252.9
11				2252.9
12				2252.9
13				2252.8
14				2252.8
15				2252.8
16				2252.8
<b>LAKE ELEVATION</b>				<b>2251.6</b>

[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 11:07 AM  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02  
**Subject:** WM Update - 6-11-11 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 061111.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Today's Update is attached.

[REDACTED]  
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Stages

11 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
A	Bismarck	16	17.5	150 kcfs 20.6	June 19	
B	Pierre	13	18.9	150 kcfs 18.7	June 7	
C	Yankton	20	24.1	150 kcfs n/a	June 14	
D	Sioux City	30	33.4	170 kcfs 35	June 15	44.28 (1952)
E	Decatur	35	37.2	175 kcfs 40	June 15	43.5 (1943)
F	Blair	26	30.4	175 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	31.3	175 kcfs 34	June 16	40.2 (1952)
H	Nebraska City	18	23.9	200 kcfs 27	June 16	27.19 (1993)
I	Brownville	33	40.0	205 kcfs 43	June 16	44.3 (1993)
J	Rulo	17	23.7	210 kcfs 25.5	June 17	26.63 (2010)
K	St. Joseph	17	22.4	215 kcfs 27	June 17	32.07 (1993)
L	Atchison	22	25.3	215 kcfs 30	June 17	31.63 (1993)
M	Leavenworth	20	21.0	215 kcfs 27	June 17	35.34 (1993)

# Missouri River Basin Stages

11 June 2011



US Army Corps of Engineers  
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages			Projected Date **	Record Stage (Year)
N	Kansas City	32	25.2	220 kcfs 30	350 kcfs 39		June 18	48.87 (1993)
O	Sibley	22	24.5	220 kcfs 28	350 kcfs 33		June 18	40.6 (1952)
P	Napoleon	17	21.4	220 kcfs 25	350 kcfs 29		June 18	28.86 (2007)
Q	Waverly	20	24.3	230 kcfs 27	370 kcfs 31		June 18	31.15 (1993)
R	Miami	18	22.8	235 kcfs 26	370 kcfs 30		June 19	32.6 (1993)
S	Glasgow	25	26.3	250 kcfs 32	410 kcfs 37		June 19	39.5 (1993)
T	Boonville	21	22.5	260 kcfs 27	420 kcfs 33		June 19	37.1 (1993)
U	Jefferson City	23	22.1	260 kcfs 27	430 kcfs 35		June 19	38.3 (1993)
V	Chamois	17	19.0	290 kcfs 24	450 kcfs 29		June 19	33.3 (1993)
W	Gasconade	22	25.3	300 kcfs 30	470 kcfs 35		June 19	39.6 (1993)
X	Hermann	21	23.0	300 kcfs 27	470 kcfs 33		June 20	36.97 (1993)
Y	Washington	20	19.5	300 kcfs 23	470 kcfs 32		June 20	35.4 (1993)
Z	St. Charles	25	25.6	300 kcfs 28	470 kcfs 37		June 20	40.04 (1993)
		-						



Record Flow (Year)  
\* 35,000 cfs (1975)

Projected Record Flow (Date)  
\* 60,000 cfs (Mid June)

Garrison (In operation since 1955)  
Midnight Elevation  
\* 1853.1 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 125,000 cfs (10 Jun)  
\* 124,000 cfs (9 Jun)

Daily Avg. Release  
\* 133,500 cfs (10 Jun)  
\* 130,600 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)  
\* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)  
\* 1850 ft msl - 1854 ft msl

Top of Spillway Gates  
\* 1854 ft msl

River Stage (Bismarck)  
\* 17.51 (0715 CDT 11 Jun)  
\* Flood stage - 16 ft  
\* 17.48 (0615 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)  
\* Releases will be stepped up to 150,000 cfs by mid June.  
\* Spillway gates are being used to pass floodwaters.

Record Pool Elevation (Year)  
\* 1854.8 msl (1975)

Record Flow (Year)  
\* 65,000 cfs (1975)

Projected Record Flow (Date)  
\* 150,000 cfs (Mid June)

Oahe (In operation since 1962)  
Midnight Elevation  
\* 1618.8 ft msl  
\* 24-hr Change (-0.1 ft)

Daily Avg. Inflow  
\* 132,000 cfs (10 Jun)  
\* 135,000 cfs (9 Jun)

Daily Avg. Release

- \* 150,500 cfs (10 Jun)
- \* 150,500 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

- \* 1620 ft msl

River Stage (Pierre)

- \* 18.9 (0715 CDT 11 Jun)
- \* Flood stage - 15 ft
- \* 18.88 (0630 CDT 10 Jun)

Planned Scheduled Releases (Subject to Change)

- \* Releases have been stepped up to 150,000 cfs.
- \* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Pool Elevation (Year)

- \* 1618.7 msl (1995)

Record Flow (Year)

- \* 59,000 cfs (1997)

Projected Record Flow (Date)

- \* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

- \* 1419.8 ft msl
- \* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

- \* 148,000 cfs (10 Jun)
- \* 140,000 cfs (9 Jun)

Daily Avg. Release

- \* 147,000 cfs (10 Jun)
- \* 138,700 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

- \* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

- \* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

- \* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

- \* Releases will be stepped up to 150,000 cfs by mid June.
- \* Reservoir will remain essentially level at 1420 feet.

Record Pool Elevation (Year)

\* 1422.1 msl (1991)

Record Flow (Date)

\* 74,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

\* 1362.0 ft msl

\* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

\* 156,000 cfs (10 Jun)

\* 148,000 cfs (9 Jun)

Daily Avg. Release

\* 136,900 cfs (10 Jun)

\* 136,300 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

\* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

\* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1372.2 msl (1997)

Record Flow (Date)

\* 67,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

\* 1207.8 ft msl

\* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

\* 146,000 cfs (10 Jun)

\* 146,000 cfs (9 Jun)

Daily Avg. Release

\* 143,400 cfs (10 Jun)

\* 140,100 cfs (9 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

\* 1204.5 ft msl - 1210 ft msl



Exclusive Flood Ctrl Zone (Elevation)

\* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

\* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

\* Releases will be stepped up to 150,000 cfs by mid June.

Record Pool Elevation (Year)

\* 1209.7 msl (2010)

Record Flow (Date)

\* 70,000 cfs (1997)

Projected Record Flow (Date)

\* 150,000 cfs (Mid June)

Source of information: <http://www.nwd-mr.usace.army.mil/rcc>

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

24-hr forecast (Glasgow, MT)

Today: Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.

Tonight: Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.

Sunday: Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.

24-hr forecast (Williston, ND)

Today: 20% chance of showers and t-storms after 1pm. Mostly sunny, with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

24-hr forecast (Riverdale, ND)

Today: Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.

Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Washburn, ND)

Today: Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Bismarck/Mandan, ND)

Today: Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.

#### 24-hr forecast (Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.

#### 24-hr forecast (Ft. Pierre, SD)

Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.

Tonight: Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.

#### 24-hr forecast (Lower Brule, SD)

Today: Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.

Tonight: 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.

Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.

#### 24-hr forecast (Chamberlain, SD)

Today: Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.

Tonight: Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.

Sunday: Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.

#### 24-hr forecast (Yankton, SD)

Today: Sunny, with high near 72. North wind 6 to 8 mph becoming east.

Tonight: Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Sioux City, IA)

Today: Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.

Tonight: Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.

Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.

#### 24-hr forecast (Omaha, NE)

Today: Mostly sunny, with high near 76. North wind around 7 mph becoming east.

Tonight: 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.

Sunday: 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>

## Missouri River Flooding (Logistics) (Updated 10 Jun; 0800 CDT)

### Personnel Deployed:

9 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
5 (Pierre, SD)  
1 (Kansas City, MO)  
5 (Sioux City, IA)  
4 (Dakota Dunes, SD)  
5 (S. Sioux City, NE)  
4 (Hamburg, IA)  
7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
6 (North Platte, NE)  
1 (Lincoln, NE)

### Equipment Deployed:

HESCO (3' and 4')  
Issued: 48,270 LF  
On Hand: 26,435 LF  
Projected Outstanding Requirements: 39,000 LF

### Sandbags

Issued: 14,031,000  
On Hand: 5,023,500  
Projected Outstanding Requirements: 6.5 M

### Poly Rolls

Issued: 2,456 rolls  
On Hand: 1,644 rolls  
Projected Outstanding Requirements: 1,500 rolls

### Pumps

Issued: 27 pumps  
On Hand: 7  
Projected Outstanding Requirements: 30 pumps

### Additional Supplies due in:

Poly Roll: 525 rolls  
MVK Pumps: 19 pumps  
SWL Pumps: Locating 4-5 pumps

Source of information: CMT Brief (10 Jun 11)

Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Mainstem Reservoir Bulletin (Updated 11 Jun; 0800 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>2251.5 ft msl</li><li>24-hr Change (+0.2ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>81,000 cfs (10 Jun)</li><li>83,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>58,900 cfs (10 Jun)</li><li>53,600 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>2234 ft msl – 2246 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>2246 ft msl – 2250 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>2250 ft msl</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases will be stepped up to 60,000 cfs on 11 June.</li><li>Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>2251.6 msl (1975)</li></ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"><li>35,000 cfs (1975)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>60,000 cfs (Mid June)</li></ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>1853.1 ft msl</li><li>24-hr Change (-0.1 ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>125,000 cfs (10 Jun)</li><li>124,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>133,500 cfs (10 Jun)</li><li>130,600 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>1837.5 ft msl – 1850 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>1850 ft msl – 1854 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>1854 ft msl</li></ul> <b>River Stage (Bismarck)</b> <ul style="list-style-type: none"><li>17.51 (0715 CDT 11 Jun)</li><li>Flood stage – 16 ft</li><li>17.48 (0615 CDT 10 Jun)</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases will be stepped up to 150,000 cfs by mid June.</li><li>Spillway gates are being used to pass floodwaters.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>1854.8 msl (1975)</li></ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"><li>65,000 cfs (1975)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>150,000 cfs (Mid June)</li></ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>1618.8 ft msl</li><li>24-hr Change (-0.1 ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>132,000 cfs (10 Jun)</li><li>135,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>150,500 cfs (10 Jun)</li><li>150,500 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>1607.5 ft msl – 1620 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>1617 ft msl – 1620 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>1620 ft msl</li></ul> <b>River Stage (Pierre)</b> <ul style="list-style-type: none"><li>18.9 (0715 CDT 11 Jun)</li><li>Flood stage – 15 ft</li><li>18.88 (0630 CDT 10 Jun)</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases have been stepped up to 150,000 cfs.</li><li>Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>1618.7 msl (1995)</li></ul> <b>Record Flow (Year)</b> <ul style="list-style-type: none"><li>59,000 cfs (1997)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>150,000 cfs (Mid June)</li></ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>1419.8 ft msl</li><li>24-hr Change (+0.1 ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>148,000 cfs (10 Jun)</li><li>140,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>147,000 cfs (10 Jun)</li><li>138,700 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>1420 ft msl – 1423 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>1422 ft msl – 1423 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>1423 ft msl</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases will be stepped up to 150,000 cfs by mid June.</li><li>Reservoir will remain essentially level at 1420 feet.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>1422.1 msl (1991)</li></ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"><li>74,000 cfs (1997)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>150,000 cfs (Mid June)</li></ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>1362.0 ft msl</li><li>24-hr Change (+0.4 ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>156,000 cfs (10 Jun)</li><li>148,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>136,900 cfs (10 Jun)</li><li>136,300 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>1350 ft msl – 1375 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>1365 ft msl – 1375 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>1375 ft msl</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases will be stepped up to 150,000 cfs by mid June.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>1372.2 msl (1997)</li></ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"><li>67,000 cfs (1997)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>150,000 cfs (Mid June)</li></ul>	<b>Midnight Elevation</b> <ul style="list-style-type: none"><li>1207.8 ft msl</li><li>24-hr Change (+0.2 ft)</li></ul> <b>Daily Avg. Inflow</b> <ul style="list-style-type: none"><li>146,000 cfs (10 Jun)</li><li>146,000 cfs (9 Jun)</li></ul> <b>Daily Avg. Release</b> <ul style="list-style-type: none"><li>143,400 cfs (10 Jun)</li><li>140,100 cfs (9 Jun)</li></ul> <b>Annual Flood Ctrl &amp; Multi-Use Zone (Elevation)</b> <ul style="list-style-type: none"><li>1204.5 ft msl – 1210 ft msl</li></ul> <b>Exclusive Flood Ctrl Zone (Elevation)</b> <ul style="list-style-type: none"><li>1208 ft msl – 1210 ft msl</li></ul> <b>Top of Spillway Gates</b> <ul style="list-style-type: none"><li>1210 ft msl</li></ul> <b>Planned Scheduled Releases (Subject to Change)</b> <ul style="list-style-type: none"><li>Releases will be stepped up to 150,000 cfs by mid June.</li></ul> <b>Record Pool Elevation (Year)</b> <ul style="list-style-type: none"><li>1209.7 msl (2010)</li></ul> <b>Record Flow (Date)</b> <ul style="list-style-type: none"><li>70,000 cfs (1997)</li></ul> <b>Projected Record Flow (Date)</b> <ul style="list-style-type: none"><li>150,000 cfs (Mid June)</li></ul>



## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Glasgow, MT)</b>  Today: Showers likely and possibly a t-storm after noon. Some storms could be severe. Mostly sunny, with a high near 72. East southeast wind 10 to 16 mph, with gusts as high as 23 mph. Chance of precipitation is 60%.  Tonight: Chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a low around 55. East southeast wind 8 to 13 mph, with gusts as high as 18 mph. Chance of precipitation is 50%.  Sunday: Slight chance of showers, then a chance of showers and t-storms after noon. Partly sunny, with a high near 70. East wind 6 to 8 mph becoming south southwest. Chance of precipitation is 40%.	<b>24-hr forecast (Riverdale, ND)</b>  Today: Mostly sunny, with a high near 71. South wind 11 to 16 mph, with gusts as high as 21 mph.  Tonight: Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 54. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 71. Southeast wind 13 to 17 mph, with gusts as high as 23 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>24-hr forecast (Washburn, ND)</b>  Today: Mostly sunny, with high near 70. South wind between 10 and 17 mph, with gusts as high as 23 mph.  Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 55. Southeast wind 13 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  Sunday: 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 70. Southeast wind 14 to 18 mph, with gusts as high as 24 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Pierre, SD)</b>  Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Otherwise, mostly sunny, with a high near 74. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  Tonight: Showers and t-storms likely, mainly after 1am. Mostly cloudy, with a low around 58. Southeast wind 17 to 21 mph. Chance of precipitation is 60%.  Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with high near 80. South southeast wind 16 to 23 mph, with gusts as high as 32 mph.  <b>24-hr forecast (Ft. Pierre, SD)</b>  Today: 20% chance of showers and t-storms after 4pm. Patchy fog before 10am. Mostly sunny, with high near 75. Southeast wind 8 to 11 mph increasing to 18 to 21 mph.  Tonight: Showers and t-storms likely, mainly after 7pm. Mostly cloudy, with low around 58. Southeast wind 18 to 21 mph. Chance of precipitation is 60%.  Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 81. South southeast wind 16 to 23 mph.	<b>24-hr forecast (Lower Brule, SD)</b>  Today: Patchy fog before 10am. Mostly sunny, with high near 74. Southeast wind 6 to 9 mph increasing to 14 to 17 mph.  Tonight: 50% chance of showers and t-storms. Mostly cloudy, with low around 58. Southeast wind 16 to 18 mph.  Sunday: 50% chance of showers and t-storms. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 17 to 24 mph, with gusts as high as 34 mph.	<b>24-hr forecast (Chamberlain, SD)</b>  Today: Mostly sunny, with high near 73. Light wind becoming east southeast 13 to 16 mph.  Tonight: Chance of showers and t-storms after 9pm. Mostly cloudy, with low around 58. Southeast wind around 15 mph. Chance of precipitation is 50%.  Sunday: Chance of showers and t-storms, mainly after 1pm. Some storms could be severe. Partly sunny, with a high near 79. South southeast wind 15 to 22 mph, with gusts as high as 31 mph. Chance of precipitation is 40%.	<b>24-hr forecast (Yankton, SD)</b>  Today: Sunny, with high near 72. North wind 6 to 8 mph becoming east.  Tonight: Chance of showers and t-storms after 1am. Partly cloudy, with low around 56. East southeast wind around 10 mph. Chance of precipitation is 30%.  Sunday: Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 76. Southeast wind 11 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.



US Army Corps  
of Engineers  
Omaha District

## Missouri River Mainstem 24-Hour Forecast Conditions (Updated 11 Jun; 0800 CDT)

Fort Peck	Garrison	Omaha	Big Bend	Fort Randall	Gavins Point
<b>24-hr forecast (Williston, ND)</b>  <b>Today:</b> 20% chance of showers and t-storms after 1pm. Mostly sunny; with a high near 72. Breezy, with a south wind 13 to 20 mph, with gusts as high as 25 mph.  <b>Tonight:</b> Showers and t-storms likely. Some storms could be severe. Mostly cloudy, with a low around 52. Southeast wind 9 to 16 mph, with gusts as high as 21 mph. Chance of precipitation is 60%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with a high near 72. East wind 5 to 14 mph, with gusts as high as 18 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.	<b>24-hr forecast (Bismarck/Mandan, ND)</b>  <b>Today:</b> Mostly sunny, with high near 71. Southeast wind 10 to 18 mph, with gusts as high as 24 mph.  <b>Tonight:</b> Showers and t-storms likely, mainly after 1am. Mostly cloudy, with low around 55. Southeast wind 13 to 21 mph, with gusts as high as 26 mph. Chance of precipitation is 70%. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Some storms could be severe. Mostly cloudy, with high near 73. Southeast wind 15 to 20 mph, with gusts as high as 25 mph. New rainfall amounts .10 to .25 inches, except higher amounts possible in t-storms.				<b>24-hr forecast (Sioux City, IA)</b>  <b>Today:</b> Mostly sunny, with high near 74. North northwest wind 6 to 9 mph.  <b>Tonight:</b> Partly cloudy, with low around 56. East southeast wind 5 to 9 mph.  <b>Sunday:</b> Chance of showers and t-storms, mainly before 1pm. Mostly cloudy, with high near 77. Southeast wind 8 to 18 mph, with gusts as high as 28 mph. Chance of precipitation is 30%.  <b>24-hr forecast (Omaha, NE)</b>  <b>Today:</b> Mostly sunny, with high near 76. North wind around 7 mph becoming east.  <b>Tonight:</b> 30% chance of showers and t-storms after 1am. Partly cloudy, with a low around 61. East southeast wind around 7 mph. New rainfall amounts of less than .10 inches, except higher amounts possible in t-storms.  <b>Sunday:</b> 50% chance of showers and t-storms. Mostly cloudy, with a high near 77. Southeast wind 9 to 16 mph, with gusts as high as 24 mph. New rainfall amounts .25 to .50 inches possible.

Source of information: <http://www.weather.gov/>

Internet: <http://www.nwo.usace.army.mil>

Facebook: <http://www.facebook.com/OmahaUSACE>

Twitter: <http://www.twitter.com/OmahaUSACE>

YouTube: <http://www.youtube.com/OmahaUSACE>

Flickr: <http://www.flickr.com/photos/omahausace>



## Missouri River Flooding (Logistics) (Updated 10 Jun; 0800 CDT)

### Personnel Deployed

9 (Glasgow, MT)  
4 (Garrison, ND)  
5 (Bismarck, ND)  
1 (Fort Yates, ND)  
5 (Williston, ND)  
5 (Pierre, SD)

1 (Kansas City, MO)  
5 (Sioux City, IA)  
4 (Dakota Dunes, SD)  
5 (S. Sioux City, NE)  
4 (Hamburg, IA)

7 (Missouri River Survey)  
1 (Decatur, NE)  
1 (Offutt, NE)  
6 (North Platte, NE)  
1 (Lincoln, NE)

### Equipment Deployed

**HESCO (3' and 4')**  
Issued: 48,270 LF  
On Hand: 26,435 LF  
Projected Outstanding Requirements: 39,000 LF

**Sandbags**  
Issued: 14,031,000  
On Hand: 5,023,500  
Projected Outstanding Requirements: 6.5 M

**Poly Rolls**  
Issued: 2,456 rolls  
On Hand: 1,644 rolls  
Projected Outstanding Requirements: 1,500 rolls

**Pumps**  
Issued: 27 pumps  
On Hand: 7  
Projected Outstanding Requirements: 30 pumps

### Additional Supplies due in:

Poly Roll: 525 rolls  
MVK Pumps: 19 pumps  
SWL Pumps: Locating 4-5 pumps



[REDACTED] NWO

From: [REDACTED]  
Sent: Saturday, June 11, 2011 10:05 AM  
To: Wayne Berkas; [REDACTED]  
Cc: [REDACTED], Farhat, Jody S NWD02  
[REDACTED]  
[REDACTED]  
Subject: RE: Wolf Point

Julie Meyer from RFC called and said for now they will assume the spike at the Wolf Point gage is an error. They will revise forecast if necessary if USGS determines the readings are correct.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED]  
[REDACTED]

-----Original Message-----

From: Wayne Berkas [mailto:wrberkas@usgs.gov]  
Sent: Saturday, June 11, 2011 8:55 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: Re: Landusky measurement

The crew is going to Landusky today. They measured Wolf Point yesterday. I'll fix the rating today. I'll look into the sudden change in stage.

Sent from my iPhone

On Jun 11, 2011, at 6:49 AM, [REDACTED] wrote:

> Wayne,  
>  
> Can you get a measurement at Landusky today? I know we talked about  
> one there this weekend, but with the rapid rise overnight today would be great.  
> An email with the flow as soon as you get it would help with the  
> inflow estimates.  
>  
> [REDACTED] will be in the office today for us [REDACTED]. [REDACTED] is the  
> worker for Water Management [REDACTED]  
>  
> By the way, any idea what's going on at Wolf Point??  
>  
> Thanks,  
> [REDACTED]  
> [REDACTED]

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 9:30 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]; Farhat, Jody S NWD02;  
[REDACTED]  
[REDACTED]  
**Subject:** Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-11 Garrison Flood Fight Daily Staff Notes (2).docx; FACT SHEET June 11 2011.docx

Classification: UNCLASSIFIED  
Caveats: FOUO

Attached are the staff notes for Saturday, June 11, 2011. The second attachment is a "Garrison Project Fact Sheet" that was developed based on questions that our Natural Resources personnel hearing while providing visitor assistance. Please continue to provide additional questions that anyone is hearing from the public. This is a great opportunity to educate the public about what we do!

[REDACTED]  
Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Saturday, June 11, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.10. Yesterday's elevation: 1853.14
  - Current Tail water Elevation 1683.65. Yesterday's elevation 1683.25
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1688.5
  - Estimated Inflows 133,500 cfs, Releases: 135,000 cfs
  - Release Schedule: Remain at 135,000 cfs Saturday and Sunday. Increase to 140,000 cfs on Monday. Goal remains at 150,000 cfs by June 17th.
  - Spillway gates #'s 1-7 and 21-28 are open one foot. Gate #'s 8-20 are open approximately 2 feet.
  - Current release distribution: Power Plant - 15,000 cfs, Regulating Tunnels - 75,500 cfs, Spillway - 44,500 cfs.
- Fort Peck releases currently 60,000 cfs and scheduled to remain at that level.
- Missouri River Elevations:
  - Bismarck gage: Currently 17.52 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 28.62 feet, forecasted to go to 29.5 feet by Monday. Previous record stage: 28.0 feet.
- Current Snowpack:
  - Ft Peck - crested at 136% of normal peak; currently 96% of the normal peak remains.
  - Garrison - crested at 141% of peak; currently 113% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED])
  - Need to monitor upstream crest road. Cracks in pavement appear to be opening slightly. Monitor area from Station 76 to 91.
  - No major issues reported. Rock repairs to tailrace appear to be holding, we'll continue to monitor both banks.
- Instrumentation (Team Leader [REDACTED])
  - Instrumentation readings going well, no noted issues.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No major issues reported.
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

**Williston Levee:**

- POC's [REDACTED]

- City of Williston is requesting additional Technical Assistance. Requests for additional modeling appear to be a bit extreme based on the current forecast.
- The boils at Williston are still flowing clear water. Some additional small pin boils have been located, but nothing of concern at this time.
- Trying to expedite contracting action to get a contractor in to improve the toe road, so it's available if needed.
- [REDACTED] pursuing installation of oil coolers for the hydraulic fluid on the new pumps.

#### **Natural Resources:**

- POC's [REDACTED]
- Someone has been driving around road closed signs/gates. NR's will be issuing citations for anyone caught doing this.

#### **Outside Maintenance:**

- Built "ball and box" devices to be placed on the west wing wall of the spillway to monitor potential joint movement at three locations. Devices were installed on 6-10.
- Everyone needs to monitor the temporary water line installed across the spillway bridge and down the East side of the dam. Any signs of leakage in this line must be reported immediately. Notify your supervisor, Chuck Phelps, or I. Also notify City of Riverdale, "Clay" at (701) 471-6433 or Charles Sorensen ext. 232, or [REDACTED] There are shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

#### **Power Plant:**

- Currently looking into the feasibility of operating the regulating tunnel gates remotely, from the control room.
- Still having some issues with the camera to monitor the spillway.
- WAPA has requested that we reduce power generation over the weekend. We are currently running two units and making the releases up via the spillway and regulating tunnels.

#### **Weather/Safety:**

Today for Riverdale: Sunshine and a few clouds. High 69F. Winds SSE at 10 to 20 mph. Chance of rain 20%	Tonight for Riverdale: A few showers early with scattered thunderstorms arriving overnight. A few storms may be severe. Low 54F. Winds SE at 10 to 20 mph. Chance of rain 50%.	Tomorrow: Variable clouds with scattered thunderstorms. A few storms may be severe. High around 70F. Winds SE at 10 to 20 mph. Chance of rain 60%.
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- [REDACTED] and [REDACTED] have volunteered to work on evacuation plans. I will coordinate with them as soon as I get a chance.

**Needed Resources:**

- Still working the staffing plan, it is not as easy as I'd hoped due to the constant turnover in support from the District...
- Working to quantify amount of rock needed to replenish emergency stockpiles and to place gravel pads/access roads to the stockpiles.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED]  
[REDACTED]

**OPM Notes:**

- We have a double lock on the East diagonal road so the hatchery folks have access. Someone removed that lock yesterday. This double lock needs to be kept in place!
- Take your time and know where you are driving. Use spotters when needed...
- Flood team meetings every morning at 0700 hours in the Outside Maintenance Building.
- I've attached a "fact sheet" which contains common questions being asked by visitors to the Garrison Project. This sheet contains a lot of good information

# GARRISON PROJECT FACT SHEET

June 11, 2011

Lake Sakakawea Current Elevation: 1853.1 msl

Tailrace: 1683.6 msl

Audubon: 1849.3 msl

## Inflows/Outflows:

Inflows: 133,500 cfs (cubic feet per second)

Combined Outflows: 135,000 cfs

Powerhouse: 16,000 cfs

Regulatory Tunnels: 75,500 cfs

Spillway: 44,500 cfs

## How are the inflows and outflows measured?

1. Inflows: Previous day's inflows are calculated by utilizing the elevation of the reservoir at midnight and comparing it to the previous day's midnight elevation. We then know the change in storage volume based on these two elevations. From that volume, we subtract the outflows to determine the previous day's inflows.
2. Outflows: Flows through the penstocks (power plant generating units) are measured using ultrasonic flow transducers.
3. Outflows: Flows through the regulating tunnels and the Spillway are calculated values derived from discharge rating curves for the type and size of gates at each structure. Based on the height each gate is raised, the rating curve provides the volume of discharge. The discharge rating curves were developed by our Waterways Experimentation Station.

How long does it take the inflows to reach the dam? Approximately two days.

Time for water to reach Bismarck: Normal travel time for the leading edge of the water to reach the Interstate Bridge at Bismarck is approximately 30 hours. However, due to the high releases, the velocities of the river are increasing and travel time can be reduced by as much as 30 percent, which would mean the water could reach the interstate bridge in as little as 20 hours.

## Regulating Tunnels: (3)

cfs capacity for each tunnel? At pool elevation 1853.0 msl: Tunnel 6 – 34,290 cfs; Tunnels 7 & 8 - 28,950 cfs (each)

## Generators: (5)

cfs capacity for each generator? The plant currently has four units in service. At the current conditions (i.e. reservoir elevations), each unit has the capability of releasing approximately 7,800 cfs and generating 100 MW of power.

## Spillway Gates: (28)

Gates are 29 feet high and 40 feet wide.

Maximum combined discharge capacity – 827,000 cfs at elevation 1858.5.

Each gate has a discharge capacity of a little over 1,000 cfs if opened 1 foot.

How high can the gates be opened? Each gate can be opened to 29.5 feet.

How exactly do the gates open? A gate hoist located above each of the gates is used to raise and lower the gates.

What is the long rectangular structure that is below the catwalk and above the spillway gates on the north side and why does the first gate on the west side not have one? The rectangular structures that are located above some of the gates are stop logs that can be stacked on top of each other to form a bulkhead in front of a Spillway gate so the gate can be inspected, serviced, and exercised without releasing water from the lake. There are a total of 18 stop logs at the spillway. One bulkhead to service a gate requires 9 stop logs.

Note: A “bulkhead” is simply another gate composed of metal pieces (the stop logs) stacked on top of each other to block the water.

### **Spillway:**

Total length – 3200 feet

**What is the depth from the Spillway apron to the stilling basin?** The difference in elevation from the Spillway Apron (1789.55 msl) to the Stilling Basin (1687.9 msl) is approximately 100 feet.

**How exactly does the stilling basin work?** The Stilling Basin is a pool of water with concrete baffles 8’ X 8’ X 10’ that are used to dissipate the energy of the water before passing through the channel to the river. I’ll try and draw a sketch or find a drawing which shows the baffles...

**How deep is the water on the spillway apron when it is released?** The depth of the water on the spillway apron depends on the amount of water being released. Currently the water depth on the apron is approximately 1-2 feet deep.

**What is the depth of water on the north side of the Spillway?** The depth of the water on the north side of the Spillway is approximately 35 -40 feet.

### **Pilot Channel:**

**How deep is the pilot channel?** Good Question???? I could not find this in the design drawings, but would estimate that it was originally an earthen ditch approximately 10 foot deep. It was designed to guide the initial flow of water from the spillway and allow the flow to cut a new channel. The channel is still eroding and will likely be 15 to 20 feet deep, with deeper holes where softer material was scoured. Ultimately the water flows, their duration and makeup of the soil in the area will determine the final depth of the pilot channel.

### **Misc Questions:**

**Type of rock that is used for riprap.** Most of the riprap used at the Garrison Project is mined Quartzite

**Depth of Tailrace?** Varies depending on location. At the plant, the depth is approximately 55’.

### **Garrison Project Facts:**

- Top of Spillway Gates is elevation 1854 msl.
- Top of Dam is elevation 1875 msl.
- Garrison Project Operating Zones/Elevations:

○ Exclusive flood control zone:	1854-1850	1,489,000 acre-feet
○ Annual flood control/multiple purpose zone:	1850-1837.5	4,222,000 acre-feet
○ Carryover/multiple use zone:	1837.5-1775	13,130,000 acre-feet
○ Permanent Pool:	1775-1673	4,980,000 acre-feet
○ Gross Storage:	1854-1673	23,821,000 acre-feet
- Previous Record Releases from the six main stem dams on the Missouri River
  - Fort Peck 35,000 cfs in 1975
  - Garrison 65,000 cfs in 1975
  - Oahe 59,000 cfs in 1997
  - Big Bend 74,000 cfs in 1997
  - Fort Randall 67,000 cfs in 1997
  - Gavin’s Point 70,000 cfs in 1997

[REDACTED] NWO

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From: [REDACTED]  
Sent: Saturday, June 11, 2011 9:20 AM  
To: [REDACTED]  
Subject: FW: Yankton (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

Since Gavin's continues to rise I asked [REDACTED] if the USGS could measure today and verify the 145kcfs since we will be on that flow until Tuesday morning. Ft Randall has been releasing 137kcfs since Tuesday. Local inflows to Gavins should be around 3kcfs.

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 8:24 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Yankton (UNCLASSIFIED)

All,

[REDACTED] has two guys leaving in about 30-45 minutes to head up to Yankton to get the measurement. He thought they would have the reading by about 2pm today. [REDACTED] plans to have them call Tim (I gave [REDACTED]'s office and cell numbers). He also has my cell number in case he cannot get a hold of Tim.

[REDACTED] can be reached at [REDACTED]

Thanks,

[REDACTED]  
-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 8:00 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: Fw: Yankton (UNCLASSIFIED)

[REDACTED]  
Could you please call Joe Gorman and see if they can get a measurement asap at Yankton?

His cell number is in water control/data collection/usgs/contacts.

Thanks,  
[REDACTED]



----- Original Message -----

From: [REDACTED]  
To: [REDACTED]  
Sent: Sat Jun 11 05:55:22 2011  
Subject: RE: Yankton (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We went to 145K yesterday. Is it possible they could measure the 145 asap if they haven't already?

-----Original Message-----

From: [REDACTED]  
Sent: Saturday, June 11, 2011 7:53 AM  
To: [REDACTED]  
Subject: Yankton

I see 138K Thursday at 0900 measured at Yankton on the website. 130 K on the 8th at 1251.

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Wayne Berkas [wrberkas@usgs.gov]  
**Sent:** Saturday, June 11, 2011 8:55 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Farhat, Jody S NWD02  
Re: Landusky measurement

The crew is going to Landusky today. They measured Wolf Point yesterday. I'll fix the rating today. I'll look into the sudden change in stage.

Sent from my iPhone

On Jun 11, 2011, at 6:49 AM, "[REDACTED]"

> Wayne,  
>  
> Can you get a measurement at Landusky today? I know we talked about  
> one there this weekend, but with the rapid rise overnight today would be great.  
> An email with the flow as soon as you get it would help with the  
> inflow estimates.  
>  
> [REDACTED] will be in the office today for us [REDACTED] Joel is the  
> worker for Water Management [REDACTED]  
>  
> By the way, any idea what's going on at Wolf Point??  
>  
> Thanks,  
> [REDACTED]  
[REDACTED]

[REDACTED] NWO

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**From:**

**Sent:**

**To:**

[REDACTED]  
Saturday, June 11, 2011 8:46 AM

Farhat, Jody S NWD02: S [REDACTED]

**Cc:**

**Subject:**

**Attachments:**

[REDACTED]  
FW: Flow vs Gate Position at various lake elevations (UNCLASSIFIED)

Flow - Gate settings.docx

Classification: UNCLASSIFIED

Caveats: NONE

All:

Attached are potential Fort Peck Spillway flows with corresponding gate openings at different reservoir pools. As you can see, as you can see, we will be discharging more without changing the gate positions. Where the pool is now, we would increase discharges over 15,000 cfs to gain a foot of storage.

[REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Assumption: Total Powerhouse Flow @ 200MW is approx. 13500cfs

<u>Total CFS</u>	<u>Spillway CFS</u>	<u>Lake Elevation</u>	<u>Approx. Gate Position</u>
60,000	46,500	2251.5	2.8-2.9
		2252.0	2.8
		2252.5	2.8
		2253.0	2.7-2.8
65,000	51,500	2251.5	3.2
		2252.0	3.2
		2252.5	3.1
		2253.0	3.1
70,000	56,500	2251.5	3.5
		2252.0	3.5
		2252.5	3.4
		2253.0	3.4

Additional Data:

<u>Spillway Discharge CFS</u>	<u>CFS per gate</u>
46,500	2906
51,500	3219
56,500	3531

**NWO**

**From:** [REDACTED]  
**Sent:** Saturday, June 11, 2011 8:45 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Farhat, Jody S  
**Subject:** Mainstem data for NWO sitrep 6/11/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/10 Pool Elev: 2251.5 ft-msl  
24-hr change: 0.2'  
6/10 Ave Inflow: 81,000 cfs  
6/10 Ave Release: 58,900 cfs  
6/11 Scheduled Release: 60,000 cfs

Garrison Dam (ND)

6/10 Pool Elev: 1853.1 ft-msl  
24-hr change: -0.1  
6/10 Ave Inflow: 125,000 cfs  
6/10 Ave Release: 133,500 cfs  
6/11 Scheduled Release: 135,000 cfs

Oahe Dam (SD)

6/10 Pool Elev: 1618.8 ft-msl  
24-hr change: -0.1'  
6/10 Ave Inflow: 132,000 cfs  
6/10 Ave Release: 150,500 cfs  
6/11 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/10 Pool Elev: 1419.8 ft-msl

24-hr change: 0.1'

6/10 Ave Inflow: 148,000 cfs

6/10 Ave Release: 147,000 cfs

6/11 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/10 Pool Elev: 1362.0 ft-msl

24-hr change: 0.4'

6/10 Ave Inflow: 156,000 cfs

6/10 Ave Release: 136,900 cfs

6/11 Scheduled Release: 137,000 cfs

Gavins Point Dam (NE-SD)

6/10 Pool Elev: 1207.8 ft-msl

24-hr change: 0.2'

6/10 Ave Inflow: 146,000 cfs

6/10 Ave Release: 143,400 cfs

6/11 Scheduled Release: 145,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Saturday, June 11, 2011 8:15 AM  
**To:** Anderson, G Witt NWD; McMahon, John R BG NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Witt-  
We'll work it and get the historical info. Will get the right folks (EM, Engineering).  
More to follow.  
Tony

Colonel Tony Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers  
[REDACTED]

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** McMahon, John R BG NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; Hofmann, Anthony J COL NWK; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO; [REDACTED]  
**Sent:** Sat Jun 11 06:03:27 2011  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Tony, could [REDACTED] shop do this? Thanks,

Witt

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** McMahon, John R BG NWD  
**To:** Anderson, G Witt NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; Hofmann, Anthony J COL NWK; [REDACTED] Tipton, Robert A Col NWD  
**Cc:** Ruch, Robert J COL NWO; [REDACTED]  
**Sent:** Sat Jun 11 05:57:26 2011  
**Subject:** Re: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Witt:

Thanks.

One piece I lack familiarity with as mentioned below is, what happened in the MR Basin (and especially in the State of Missouri) in 2009, 2008, and 2007? Was also mentioned in the congressional letter we got last week--past 5 years, Missourians have been hit hard...I know what happened in 2010 and can tell a good story about that one. Please have someone summarize those previous 3 years in a page or 2 for context/perspective in preparation for my visit there later this month. Thanks.

Vr/John McMahon

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** Blechinger, Erik T NWO; McMahon, John R BG NWD

Cc: Tipton, Robert A Col NWD; Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Farhat, Jody S NWD02

Sent: Fri Jun 10 18:49:12 2011

Subject: Fw: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Our visit and tour with Cong Graves and Cong Jenkins for several hours later in the day had quite a different flavor - Graves not so negative; I imagine he was playing to his constituents. Tony did a great job answering several of the questions noted by John from the earlier meeting and Jud answered the tribs inundation issue.

One thing we can bet on is Graves will push for review of MM. I noted in the initial brief to him that the hydrology this year is a new data point which we will be looking at re MM. He locked on to that.

At several site visits including St Joseph, Elwood, Hall's levee, Atchison, the locals were appreciative of NWK work and assistance; water management operation questions were a theme.

The CG's OpEd piece should help if the media pick it up.

Witt

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Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED]  
To: Anderson, G Witt NWD  
Sent: Fri Jun 10 16:32:29 2011  
Subject: Fw: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

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Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED]  
To: [REDACTED]; Hofmann, Anthony J COL NWK; [REDACTED]  
[REDACTED]  
Sent: Fri Jun 10 14:41:52 2011  
Subject: Congressman Graves' Parkville Meeting (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Congressman Graves held a meeting at Parkville at 2PM, meeting was pretty negative against the Corps. The following were the primary discussion points:

1. Congressman starting out the meeting: There has been flooding in 2007, 2008, 2010, and now and in each case the Corps has "missed their targets every time" and is missing the targets now.
2. Congressman characterized the Corps of Engineers as releasing too much water, not operating properly, and Congressman would ask why we can't lower the releases.



3. Citizens were asking why there can't be a levee at Parkville. Officials portrayed Missouri River Levee at L385 as taking since 1930's to construct. I advised Mayor Richardson (in private) after the meeting that we studied a levee / floodwall at Parkville after 1993 flood, and determined that it had VERY questionable technical feasibility, no economic feasibility, no financial (cost share) feasibility, and that it would devastate the aesthetics of downtown Parkville. City did not pursue a project for that reason. After the meeting in line with the general mood, Mayor took on a slightly questioning or even hostile tone toward me, so I of course departed the area.

4. A citizen claimed that they had the National Guard ready to go out and work on a levee, but the Corps was refusing to allow it. That issue got batted around the meeting quite a bit on how autonomous and hard to work with that the Corps was. Nobody ever said what levee or specified any factual circumstance.

5. Platte County asked for "tributary inundation maps". They told Congressman that Platte County asked the Corps for tributary inundation maps and that the Corps was not providing them. Then, Graves' LD Mr. Matusak called Combs asking for "inundation maps", did not specify "tributary", and then another staffer did same to Amy Blair, this just adding to misinformation. Truth is that we do not have the technical information or capability to provide broadly applied inundation maps on tribs. Dave Combs explained that in a very well worded response email to Mr. Matusak.

6. Never once was mentioned the thousand of sandbags, sandbag machines, Port-a-dam from Rock Island, or the extensive technical support and proactive liaison provided by the Corps to Parkville.

In fairness, several County and City officials, Mayor Richardson, and multiple reporters in the room, all of who know me, nevertheless none of them called out my name or advised that I was there representing the Corps. For that I am eternally grateful to them!

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** Anderson, G Witt NWD  
**Sent:** Saturday, June 11, 2011 7:32 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: FW: Glacier Pictures (UNCLASSIFIED)

Great point!

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Anderson, G Witt NWD  
**Sent:** Fri Jun 10 20:18:56 2011  
**Subject:** Re: FW: Glacier Pictures (UNCLASSIFIED)

But this area is named glacier for a reason. Perhaps we're moving back into the glacier building mode. Or is that just wishful thinking?

----- Original Message -----

**From:** Anderson, G Witt NWD  
**To:** Farhat, Jody S NWD02  
**Sent:** Fri Jun 10 19:56:05 2011  
**Subject:** Fw: FW: Glacier Pictures (UNCLASSIFIED)

Not to underscore your worries Jody...

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Ruch, Robert J COL NWO  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; Hofmann, Anthony J COL NWK  
**Sent:** Fri Jun 10 14:29:21 2011  
**Subject:** FW: FW: Glacier Pictures (UNCLASSIFIED)

Pictures taken 5 June in Montana - think we still have some melt coming?

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE

<https://www.nwo.usace.army.mil/>

